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Identifying the challenges of 6 months telerehabilitation programme on non-COVID patients during COVID -19 through patients' perception**Dr. Maheshwari Harishchandre¹, Dr. Suvarna Ganvir²**¹Associate Professor, Department of Neuro-physiotherapy, D.V.V.P.F's College of Physiotherapy, Ahmednagar.²Professor & HOD Department of Neurophysiotherapy, D.V.V.P.F's College of Physiotherapy, Ahmednagar.**ABSTRACT:**

Background: The effect of Covid-19 on medical care for conditions other than Covid-19 has been difficult to quantify.¹ Any decrease in care for patients with stroke may be consequential because timely treatment may decrease the disability. **Methodology:** A qualitative type of study was conducted on 15 participants. Old neuro patients, participants who were willing to participate & performing ADL's with difficulty or minimal assistance were included & new patients, participants with neurological abnormalities, were excluded.

Result: A total 15 participants with neurological dysfunction were included in the study. The mean duration of symptoms was 2.83±2.35 in years. 80% of patients were like the concept of telerehabilitation & 100% of patients were satisfied with the telerehabilitation session.

Conclusion: Patients were generally satisfied of the telerehabilitation programme during COVID; however, they showed less interest after several sessions and challenging to take follow up of telerehabilitation for long term.

Key Words: Perception, Telerehabilitation, Physiotherapy, Exercises etc.

Introduction:

As the world grapples with coronavirus disease 2019(COVID-19), healthcare systems globally are adversely affected and interference with the care-seeking, diagnosis, and treatment of non-infectious disease has been reported¹. The fear of coronavirus has resulted in a decrease in the number of acute stroke admissions worldwide, raising alarm that effective treatment may be delayed or denied. Accordingly, to explore the hospitalization rate, treatment course, and outcome of stroke patients in the stroke unit during the COVID-19 pan-demic and their differences compared to the usual².

Coronavirus disease 2019 (COVID-19) has had a disruptive effect on healthcare systems around the world. Since March, when the disease entered a pandemic phase, contingency plans have been implemented in healthcare systems and hospitals worldwide, including the deferral of elective medical procedures³.

The effect of COVID-19 pandemic on medical care for conditions other than Covid-19 has been challenging to quantify⁴. Any decrease in care for patients with acute conditions such as ischemic stroke may be consequential because timely treatment may decrease the incidence of disability^{5,6}.

*Corresponding author

Dr. Maheshwari Harishchandre E-mail: maheshwariharishchandre@gmail.com

Dr. Vithalrao Vikhe Patil Foundation's College of Physiotherapy, Ahmednagar, Maharashtra, India 414111

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Physical rehabilitation restores and enhances the ability of people with physical impairments. Some common conditions in which neuro rehabilitation is useful to include stroke, Traumatic brain Injury/head Injury, Spinal cord injury, Multiple sclerosis (MS), Parkinson's disease, and Bell's palsy, Muscular Dystrophy etc. Stroke & Spinal Cord Injury are the commonest cause of disability throughout the world. The damage to the nervous system after a person experiences a stroke often results in hemiparesis, leading to difficulty in using the arm and hand of the hemiparetic side. Approximately 80% of individuals with stroke experience difficulties in performing daily living activities (ADLs); consequently, social participation is limited because of the impairments in Spinal cord injury (SCI) spinal cord injured by traumatic and non-traumatic causes, from the foramen magnum to the cauda equina which occurs as a result of compulsion, incision or contusion. SCI rehabilitation is a long process that requires patience and motivation of the patient and relatives⁷. Early rehabilitation is essential to prevent joint contractures and muscle strength loss, conservation of bone density⁸. But due to the COVID pandemic situation, patients can't come to the hospital or clinics for treatment purpose, so it affects the patients' physical health status and decreases their functional activity and independency. Access to telerehabilitation comes at a critical time for patients seeking treatment in the present complex healthcare system, especially during a Coronavirus.

Telerehabilitation has been defined as "the delivery of rehabilitation services via information and communication technologies" and encompasses services that include assessment, prevention, treatment, education, and counselling. Telerehabilitation uses telehealth to provide rehabilitation services to patients with different system dysfunction such as stroke, spinal cord injury, limb-girdle muscular dystrophy, arthritis, spondylitis etc.. Telerehabilitation offers regular communication

between the rehabilitation team members and real-time assessment of the patient's environment. Thus it improves patient satisfaction and quality of life. Rehabilitation sessions could be provided via telecommunication technology for the patients who are at home⁹⁻¹⁰. Telerehabilitation, which consists of audio-visual connection, utilizes information technologies and communication networks for delivering healthcare, education & services¹¹. Telerehabilitation has been developed to take care of inpatients transferred to their home after the acute phase of a disease, mainly to reduce patient hospitalization time and cost for both patients and health care providers. Telerehabilitation is used in different fields and different countries; however, less literature and data are available in India on neurological telerehabilitation.

To improve patients' physical health, we had started telerehabilitation programme; at first, we have contacted all our old OPD & IPD patients whose physiotherapy treatment was going on for a long time. After significant no. of the session with each patient, it was thought to understand the future directions of telerehab by knowing about the perception of patients.

In this context, the purpose of this study was to investigate the perception of patients with in-home telerehabilitation as a supplement to face-to-face therapy for patients with neurological dysfunction. So, it will help to conduct the telerehabilitation session in the future once patients get discharged from the hospital.

Methodology-

A cross-sectional study was conducted by the Neuro department at DVVPPF's College of Physiotherapy. A total of 15 participants were selected for study with different neurological conditions. 5 participants of spinal cord injury, 8 were of stroke, 1 participant was of traumatic brain injury, one was of Proximal muscle girdle dystrophy.

The study design was the qualitative type of study; conducted at the college of physiotherapy on the Zoom app. Before starting the telerehabilitation session, we had contacted via telephone to every patient & explained to them in detail about the purpose of the study—an interview taken by the principal investigator. The total duration of study was 6 months. Participants included in study as per the following Inclusion criteria were –

1. Old OPD/IPD patients with different neurological conditions
2. Participants who were willing to participate in the study
3. Participants who can perform daily activities independently with difficulty or with minimal assistance

Exclusion Criteria were-

1. Participants with severe musculoskeletal and cardiovascular abnormalities like recent fracture, severe infection, unstable cardiovascular disease
2. Participants with lower higher mental function, speech & hearing difficulties & severe neurological conditions.

Procedure:

We had taken regular follow-up patients whose physiotherapy treatment in our OPD was going on, but because of COVID – 19 they could not come for physiotherapy treatment since March 2020. Apart from this, these patients also reported that they also wanted to be a part of the telerehabilitation session, so we also included them. Total 15 participants were included in this study as per the selection criteria. Explain in details about the study and the study purpose, protocol, follow up and questions that were related to the perception of telerehabilitation. Ethical committee approval was taken before the data collection. The schedule was displayed on the patients & therapist WhatsApp group, so it was more suitable & clear for conversation. In the schedule patient's name, date & time of rehabilitation session & therapist name was

mentioned. Sessions were scheduled on Zoom App; so, before starting the session meeting, ID and password were posted on the WhatsApp group. Patients joined with the same ID for the treatment session, which was provided to them. In the telerehabilitation session, the therapist showed the exercises to patients on a model as per the patient's condition & health status. Then in the same session itself, the video recording was done. The video was sent to the patients on their personal WhatsApp number, so they can easily watch those videos again and again. We conducted group therapy session for the same patients as per the involvement like upper limb & lower limb; we divided the patients into two groups, and different exercises session were conducted in group therapy. After 15 days of 1st telerehabilitation session, we took follow-up and patients were assessed for improvement by asking a few questions in the interview session and performing some daily activities. A list of 10 questions was formed to check the patient's perception of the telerehabilitation session. This whole session was conducted for six months.

Data Analysis:

The results of this study were analyzed in terms of patients perception of telerehabilitation during COVID -19. Statistical analysis was done by GraphPad InStat software. The data was entered into an excel spreadsheet, tabulated and subjected to statistical analysis. Various statistical measures such a mean, standard deviation (SD) and test of significance such as paired and unpaired 't' test were utilized to analyze the data.

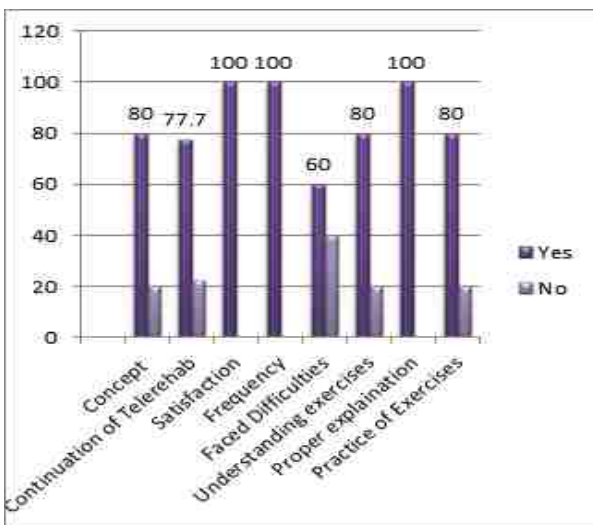
A total of fifteen participants with neurological dysfunction were included in the study; by considering the inclusion and exclusion criteria. The mean age of the participants was 35.66±10.75years. The gender ratio was 12:3 (12 males and 3 females). The mean duration of symptoms of the participants was 2.83±2.35 in years. The results for demographic information included age, gender and duration, are shown in Table 1

Table 1: Shows demographic profile:

Demographic Data	Mean±SD
Age (years)	35.66±10.75
Gender (M/F)	12(80%) /3(20%)
Duration after injury/trauma (days)	2.83±2.35

Table No. 2 : Shows the percentage of questions were asked during the telerehabilitation interview session

Sr. No.	Questions	YES (%)	NO (%)
1	Did you like the concept of telerehabilitation?	80	20
2	If yes, would you like to continue with Telerehab after lockdown is over, or you like to come here physically for the treatment?	77.7	22.2
3	Are you satisfied with the duration of telerehabilitation?	100	0
4	Are you satisfied with the frequency of telerehabilitation?	100	0
5	How many people faced difficulties during the session?	60	40
6	Do you understand the exercises chosen during the session	80	20
7	Does the therapist explain the exercises properly to you?	100	0
8	Do you practice these exercises later in the day or till the next session?	80	20



Graph 2: shows percentage wise distribution of (interview) questions

Discussion:

Telerehabilitation gives treatment benefits to the patient, especially those living in rural areas. It provides a safe & effective alternative to traditional inpatient care. To improve patients functional capacity, we have started telerehabilitation session for neurological patients by using modified technology i.e Zoom app; however, we did not know whether patients were satisfied or unsatisfied with the treatment session, time, duration & quality of treatment. To know the patient's perception of telerehabilitation, we were asked a few questions about the session by interview (on zoom) method. Based on the results, have found out that 80% of people liked the concept of telerehabilitation. Along with that 100% of patients were satisfied with the duration and frequency of telerehabilitation; but the patients faced few difficulties regarding equipment set up, internet network issue & availability for those who were living in rural areas and those who were dependent upon their family members for daily care and activities & unable to perform without assistance. But some of them were using homemade equipment for treatment purpose like (pulley exercises with the help of a rope tied at the window, filled water bottle for facilitation purpose etc.)

We had found a good response from the patient's side regarding the explanation of the exercise during sessions and communication with the therapist. Along with this 80% of the patient's practised their exercise on the same day as well as up to the following sessions scheduled, but there were 20% of patient who had difficulty on performing exercise at home because they were unable to perform exercise independently & those who require assistance to do the exercise facing some handling problem and availability of caregivers to assist for exercises; and some were not willing to do exercise because of pain, tightness, and fatigue. We had seen the satisfaction level of the patient's who are using telerehabilitation in this study.

The scale consisted of 0-10 scale were used to check the rating of patients to the session in which 0 represented No satisfaction and 10 represented satisfaction highly; as per result analysis, it has shown that 6 patients rated 10 on a scale and remaining 3 patients rated the score as 9, 7, 6 respectively. They have mentioned reasons for less satisfaction that facing difficulty to do proper handling and accuracy at home with caregiver assistance, not getting correctly or sometimes not explained properly & regularity were not maintained at home. One more thing, we have observed that as the number of sessions increases, the patient's interest decreases. Lastly, we asked the patients whether they would like to refer needy patients to our department, so we also got 100% response.

Tim Johansson et al. conducted a systematic review on telerehabilitation in stroke care in 2011. In that study, they concluded that home-based telerehabilitation interventions showed promising results in improving stroke patients' health & in supporting caregivers¹². One more study conducted by Neale R. Chumbler and et al. in 2012 on effects of telerehabilitation on physical function and disability for stroke patients: A RCT on 52 stroke patients and he concluded that telerehabilitation intervention significantly improved physical function & it could be a useful supplement to traditional post-stroke rehabilitation given the limited resources available for in-home rehabilitation for stroke survivors¹³.

Shilpa Tyagi & Helena Legido were focused facilitators and barriers for telerehabilitation in their study conducted in 2018; in that they mentioned facilitators like affordability & accessibility & barriers were equipment setup related difficulties, the limited scope of exercises & connectivity barriers which were support to our study. Our study also shows the same type of barriers like connectivity, handling & equipment setup, and caretakers' availability¹⁴.

A study was done by Mawadah M Magadmi, Fatemah O Kamel, Rania M Magadmi in 2020 on Patients' Perceptions and Satisfaction Regarding Teleconsultations during the COVID-19 Pandemic in Jeddah, Saudi Arabia & they concluded that most patients were satisfied with the teleconsultations during the COVID-19 pandemic. However, a better understanding of patients' perceptions and reasons for dissatisfaction is fundamental in the planning and implementing teleconsultations in Saudi Arabia¹⁵. In the present study also shows patients' satisfaction regarding telerehabilitation.

Conclusion:

The study concluded that patients were generally satisfied with the treatment duration, frequency, explanation (given during session) of telerehabilitation programme implemented in neurological dysfunction patients during COVID – 19 Pandemic situation and patients can access telerehabilitation programme easily by creating some modification in home appliances and network issues but showed less interest after a number of sessions. The results of this study could shape the future of practising telerehabilitation programme for improvement in health status and will help with reducing the barriers for successfully conducting telerehabilitation programme, but it focuses on one more thing that is very difficult to follow the telerehabilitation session for a longer duration.

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Conflict of Interest: No

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