

Research Article

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# To investigate physiotherapists' comfort to use Telerehabilitation and to explore the barriers & facilitators for Telerehabilitation during the COVID-19 pandemic - A cross sectional study.

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## Abstract

**Background:** The global pandemic has required the physiotherapy profession to consider digital physiotherapy practice and telehealth as a method to deliver healthcare services. Tele-rehabilitation has been considered a suitable alternative healthcare delivery system during the COVID-19 outbreak, and many studies have promoted its feasibility in delivering physical care to patients who live with pain and disability. Physiotherapists' perceptions and willingness are two key factors that influence the provision of remote physiotherapy.

**Aim & objectives-** To investigate physiotherapists' comfort to use telerehabilitation during the COVID-19 pandemic and to explore the barriers that may hinder the use of telerehabilitation in this sector.

**Methods:** A cross-sectional survey method was used. In the cross-sectional survey, a google form questionnaire was sent to physiotherapists who were working in the clinical settings, both clinics as well as hospitals. The questionnaire included following sections: comfort with technology, patients willingness, facilitators and barriers for using telerehabilitation.

**Statistical analysis:** In this study, descriptive data analysis was conducted, and pearson correlation was used to find the associations between the variables, level of significance, was p 0.05.

**Result-** completed questionnaires were received, giving a response rate of 55%. Most of the respondents considered tele-rehabilitation a viable option to deliver healthcare to patients during the COVID-19 pandemic. In spite of the lack of information and communication technology (ICT) 57.5%), 86% of the respondents

### Keywords

Physiotherapist,  
Telerehabilitation,  
facilitators,  
Barriers

were willing to integrate tele-rehabilitation into their conventional practice, as cultural and social norms were not against the use of tele-rehabilitation systems. The results indicate that more the physiotherapists used the internet and email in their work and the more comfortable they were with technology, the more willing they were to use tele-rehabilitation systems. The physiotherapy managers reported that patients' privacy and the confidentiality of their data were considered barriers.

**Conclusion:** Physiotherapists in Gujarat, showed overall positive perceptions towards comfort to use tele-rehabilitation to facilitate patients' access to physiotherapy services. There are several barriers to employing Telerehabilitation. Accordingly, recommendations were suggested.

## **Introduction**

The outbreak of coronavirus disease (COVID-19) has changed many aspects of people's lives and has pushed governments and health authorities to implement several protective measures, such as social distancing, to minimize the risk of exposure<sup>1</sup>.

Telerehabilitation is a medical service provided at a distance through digital media. Such services may include assessment, diagnosis, prognosis, and treatment through the education of patients and family members. Normally telerehabilitation is provided to individuals who are living in geographically distant locations or to individuals who are not able to reach the rehabilitation center due to disability and financial constraints. As per the current scenario, the mandatory social distancing due to COVID 19 has made telerehabilitation the best method to deliver medical services and to avoid the spread of infection<sup>2</sup>TR includes health care providers such as speech pathologists, occupational therapists, biomedical engineers, physiotherapists, and other allied health care personnel. It covers all the stages of rehabilitation from assessment, diagnosis, prognosis, intervention to follow-up<sup>5</sup>. Rapid development in TR services stems from the desire to provide the best rehabilitation to beneficiaries irrespective of their location. Some disorders limit an individual's mobility critically, which prevents them from attending local health services.<sup>2</sup>

Taking up digital health interventions has been the only feasible approach for many institutions to manage their patients. The World Confederation for Physical Therapy(WCPT) / International

Network of Physiotherapy Regulatory Authorities (INPTRA) Digital Physical Therapy Practice Task Force has concluded that the goal of digital physiotherapy is to facilitate the "effective delivery of physical therapy services by improving access to care and information and managing health care resources"<sup>3</sup>

Several studies have highlighted the perspectives and acceptance of clinicians and healthcare providers in regard to telerehabilitation use<sup>1</sup>. Overall, positive impressions and high rates of satisfaction among clinicians and healthcare providers were reported in these studies.

There are very less studies published to date that relates to the current situation in the India regarding the implementation of TR-based physical therapy practice. Therefore, the purpose of this study is to investigate physiotherapists' comfort to use telerehabilitation and to explore the barriers & facilitators for telerehabilitation during the COVID-19 pandemic in Gujarat—A cross sectional study.

## **Aims and objectives**

1. To investigate physiotherapists' comfort to use telerehabilitation during the COVID-19 pandemic in Gujarat
2. To explore the barriers & facilitators for tele-rehabilitation during the COVID-19 pandemic in Gujarat

## **Methodology**

Study design used was cross-sectional study. Population included Physiotherapists practicing in private clinics, hospitals, Academics .Sampling

technique was purposive sampling. The Study duration was 6 months. The sample size for this survey was determined using Yamane formula:  $n = N/[1 + N(e)^2]$  [12], where n is the sample size, N the population size (400) and e is the level of precision (0.05). Therefore, 200 respondents were recruited for this study. 4. The Sample size was 104. Data was collected through google form survey from physiotherapists working in different clinics, hospitals and physiotherapy O.P.D. s from different regions of India.

**Procedure-** The study was conducted through an online google form survey emailed and wats app to the PTs working in hospitals, clinics and

academicians. Participation in this survey was voluntary and participants did not receive any incentives for this participation. The questionnaire, along with the consent form, was sent to each of the PTs directly. The questionnaire was distributed to around 200 physiotherapists. The total response collected was 104. The final questionnaire contained a survey with around 23 close-ended questions targeting following domains: General information, telerehabilitation knowledge, compliance to use telerehabilitation, barriers and facilitators to telerehabilitation. The general information included age, sex, contact details, no. of years of experience, setting of practice etc.

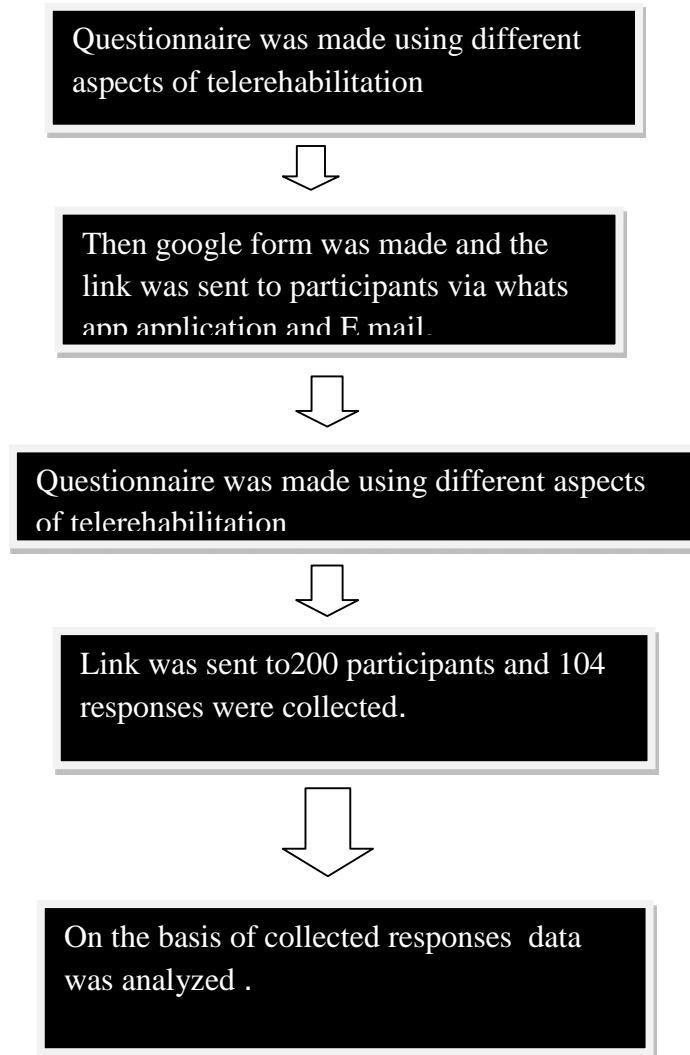


Figure 1. Illustrates Flowchart Of Procedure Of The Study

**Statistical analysis-** Survey results were analyzed using SPSS version 20, (IBM), and then descriptive statistics were obtained. The data were presented as frequency and percentage of response from the participants.

**Result**

The data were presented as frequency and percentage of response from the participants.

1. Happy To Use Telerehabilitation To Deliver Physiotherapy-	Yes-21.2%
2. Confident Enough To Provide Video Based Treatment-	Yes-68.3%
3. Telerehabilitation Is Simple To Use-	Yes-65.4%
4. Satisfied With The Treatment Which You Have Given With The Help Of Telerehabilitation?	Yes-61.5%
5. Satisfied With Telerehabilitation Treatment?	Yes-57.7%
6. Telerehabilitation Provides Proper Assessment Of Patients?	Strongly Agree-5.8% Agree-23.1% Neutral-42.3% Disagree-23.1% Strongly Disagree-5.8%
7. Telerehabilitation Improves Your Access To Patients?	Strongly Agree-6.7% Agree-31.7% Neutral-44.2% Disagree-13.5% Strongly Disagree-3.8%
8. Telerehabilitation Saves The Time For Home Visits/Hospitals/Clinics	Strongly Agree-22.1% Agree-52.9% Neutral-20.2% Disagree-3.8% Strongly Disagree-1%
9. Easy To Communicate Patients With The Help Of Telerehabilitation?	Strongly Agree-9.6% Agree-41.3% Neutral-33.7% Disagree-13.5% Strongly Disagree-1.9%
10. Telerehabilitation Increasing The Flexibility Of Work Hours?	Strongly Agree-20.2% Agree-48.1% Neutral-26.9% Disagree-3.8% Strongly Disagree-1%
11. Telerehabilitation Reducing Worries About The Availability Of Space In Many Clinical Settings?	Strongly Agree-20.2% Agree-48.1% Neutral-26.9% Disagree-3.8% Strongly Disagree-1%

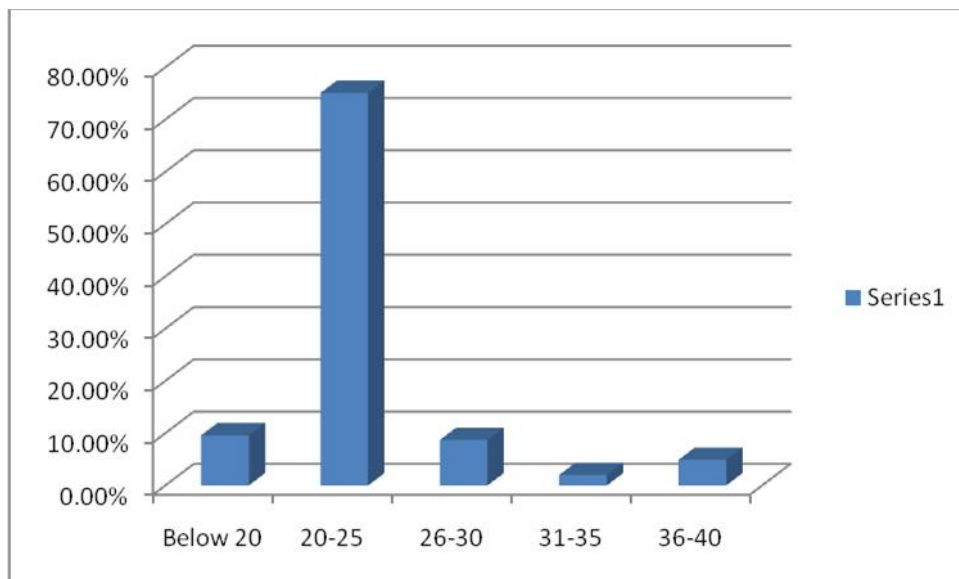
12. Telerehabilitation Effective Against Traditional Physiotherapy?	Strongly Agree-5.8% Agree-21.2% Neutral-31.7% Disagree-26.9% Strongly Disagree-14.4%
13. Telerehabilitation Helpful To Provide Treatment At Rural And Remote Areas?	Strongly Agree-16.3% Agree-36.5% Neutral-24% Disagree-16.3% Strongly Disagree-6.7%
14. Overall Feedback Regarding Usage Of Telerehabilitation?	Strongly Agree-6.7% Agree-40.4% Neutral-37.5% Disagree-10.6% Strongly Disagree-4.8%
15. Recommend Telerehabilitation To Others?	Yes-71.2% No-28.8%
16. Telerehabilitation Increasing Workload?	Strongly Agree-3.8% Agree-25% Neutral-43.3% Disagree-26% Strongly Disagree-1.9%
17. Telerehabilitation Soft Ware Costly?	Strongly Agree-3.8% Agree-30.8% Neutral-45.2% Disagree-19.2% Strongly Disagree-1%
18. Telerehabilitation Software Lacking In Perceived Clinical Usefulness?	Strongly Agree-4.8% Agree-41.3% Neutral-42.3% Disagree-10.6% Strongly Disagree-1%
19. Telerehabilitation Causes Lack Of Communication Between Ict Experts And Clinicians?	Strongly Agree-4.8% Agree-39.4% Neutral-44.2% Disagree-11.5% Strongly Disagree-0%
20. Suitable Training Is Required To Practice Telerehabilitation?	Strongly Agree-10.6% Agree-49% Neutral-26.9% Disagree-11.5% Strongly Disagree-2%
21. Telerehabilitation Maintains Patient Privacy And Confidentiality Of Data ?	Strongly Agree-10.6% Agree-49% Neutral-26.9% Disagree-11.5% Strongly Disagree-2%

22. Telerehabilitation Improves Quality Of Life?	Strongly Agree-8.7% Agree-42.3% Neutral-32.7% Disagree-14.4% Strongly Disagree-2%
23. Telerehabilitation Valid Tool For The Current Health Care Set Up?	Strongly Agree-14.4% Agree-43.3% Neutral-32.7% Disagree-5.8% Strongly Disagree-3.8%

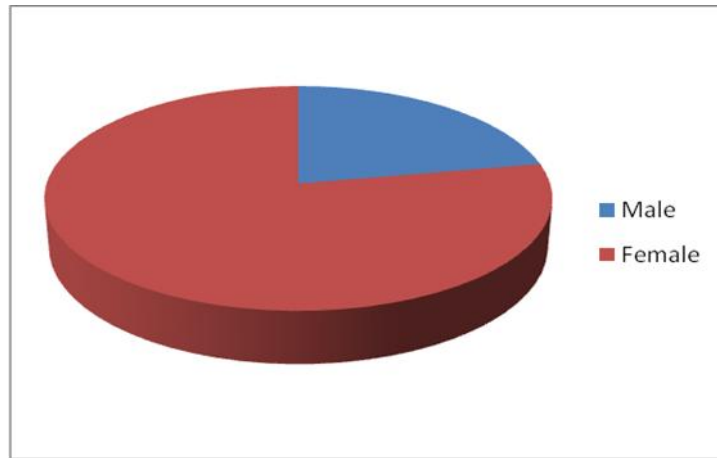
Table 1.Illustrates Percentage Of Responses From Participants

In this study 104 participants were included. The participants were categorized in to different age groups. They were divided into following age group.i.e below 20, 20-25, 26-30,31-35,36-40. Age of participants were 9.60%, 75. 10%, 8.70%,2% and 4.90% respectively. The mean and SD for Age below 20 year of participants was 20.06 and 0.309187, Mean and SD for age of 20-25 was 22.68 and 0.350, mean and SD for age of 26-30 was 5.20and 0.336, mean and SD for age of 31-35 was 3.45 and 0.0020and mean and SD for age of 36-40 years was 4.90 and 0.309 .In this study 22.10% males and 77.90% were included. In the present study goggle form was sent to different physiotherapists in which 14.40% participants were from clinical OPD,50% from college OPD,7.70% from hospital setting,5.80%

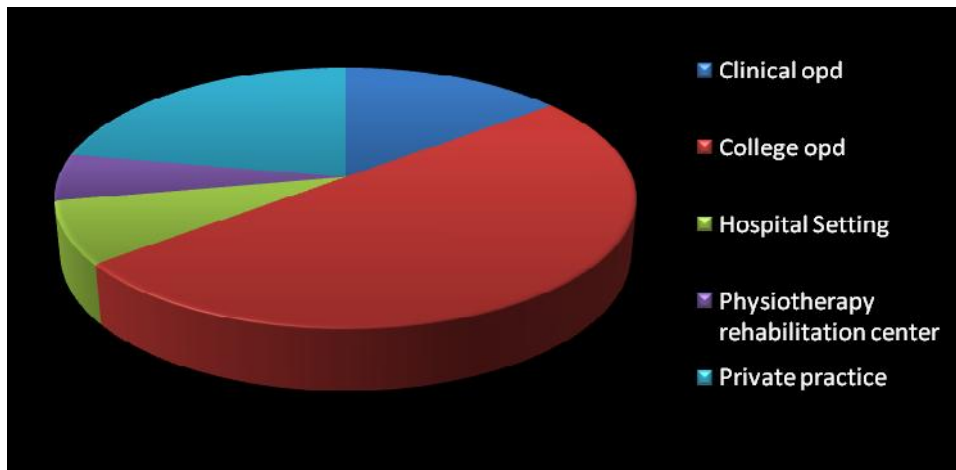
from physiotherapy rehabilitation center and 22.10% from private practice. In this study 58 participants were having less than 3 years of experience, 30 participants were having 4-6 years of experience,5 participants were having 7-9 years of experience,6 participants were having 10-12 years of experience and 5 participants were having more than 12 years of experience. The mean and SD was 20.8±for 0-3 year experience participants and, Mean and SD was 11.5 and 12.34 for 4-6 year experience participants , Mean and SD was 5.33 and 0.577, for 7-9 year experience participants , Mean and SD was 5.5 and 0.707 for 10-12 year experience participants and Mean and SD was 5 and 23.38. for above 12 year experience participants .



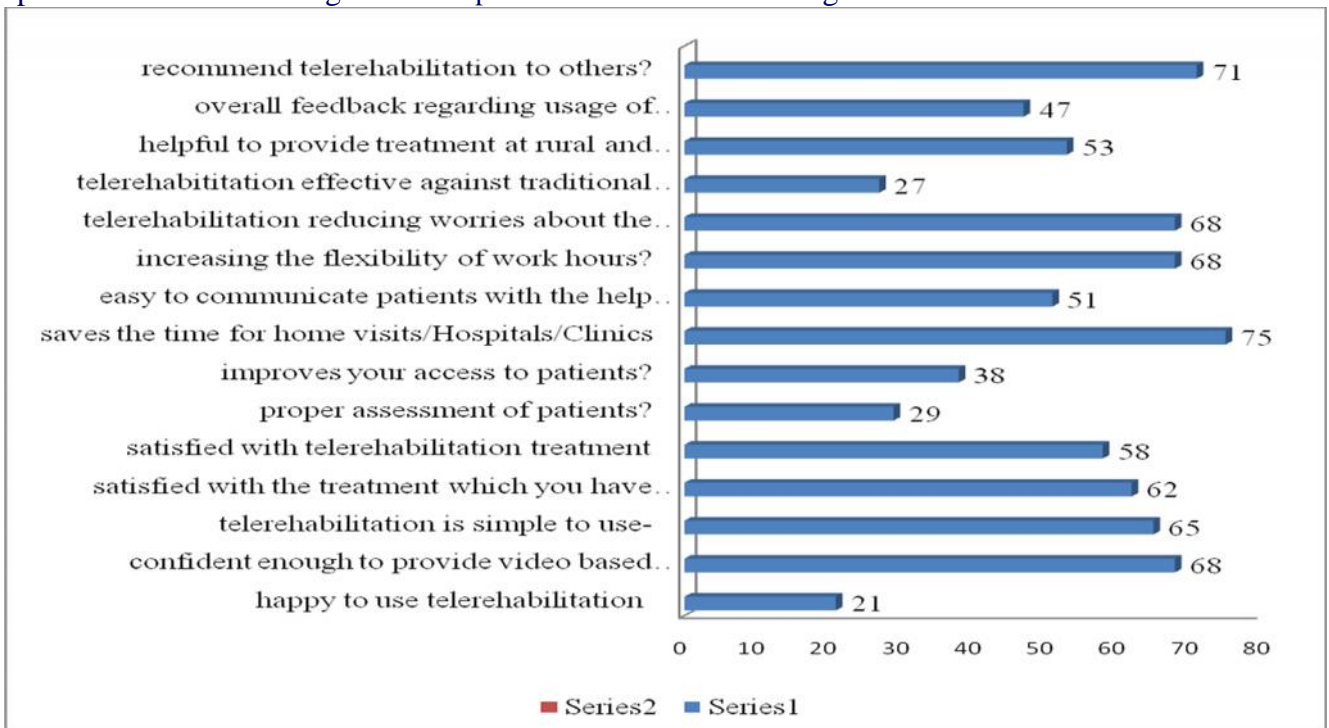
Graph 1 -Illustrates Mean & S.D Of Participants In Different Age Groups.



Graph 2. Illustrates Ratio Of Male And Female Participants



Graph 3. Illustrates Percentage of Participants From Different Settings

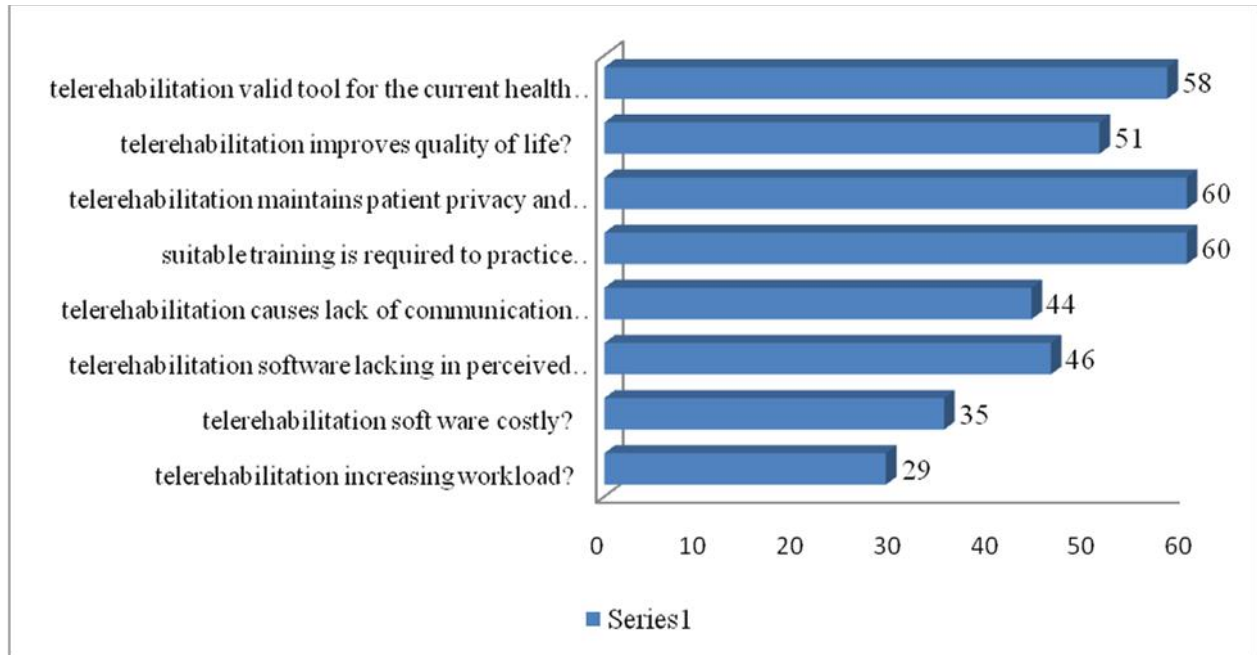


Graph 4- Illustrates Percentage Responses Regarding Compliance & Facilitators Of Telerehabilitation:



Above graph shows the results of the PTs' perceptions of telerehabilitation systems. The results demonstrate that most of the respondents agreed that telerehabilitation systems could be a solution for handling patients with physical problems during the COVID-19 pandemic. Majority of respondents agreed regarding the usage of telerehabilitation during COVID 19 pandemic. But very less Respondents were happy with the usage of telerehabilitation. Majority of the respondents were comfortable with the usage of telerehabilitation. In the above mentioned figure 68% respondents were confident while they have provided video based telerehabilitation programme to their patient. Because with the help of telerehabilitation programme they were able to communicate with the patients easily. In the present study 65% respondents believed that telerehabilitation is simple to use. In present study 62% respondents were satisfied with the treatment which they have given to their patients. 58% patients were satisfied with the treatment which they had given with tele rehabilitation.

Only 38% respondents agreed that telerehab improved access to the patient. In the contrary 75% respondents were showing the positive result that Telerehabilitation helped to save the time for home visits, Hospitals and Clinics. Also 68% physiotherapist believed that telerehabilitation programme had increased flexibility of work hours. Here only 29% physiotherapists believed that telerehabilitation helped in proper assessment of patient. Telerehabilitation is helpful for proving treatment to rural areas. 53% physiotherapists showed positive response in this area. 51% physiotherapist felt that it is easy to communicate with the patients with video call. Only 27% physiotherapist showed positive response as most of the physiotherapist believed that telerehabilitation is less effective against traditional treatment. Overall 47% physiotherapist were satisfied with the usage of telerehabilitation technique during COVID 19 pandemic. 71% physiotherapist showed positive response towards recommendation of telerehabilitation to others.



Graph 5- Illustrates Percentage Responses Regarding barriers Of Telerehabilitation

Figure shows the barriers identified by the participants as obstacles to telerehabilitation implementation. Results illustrate that the most common barrier identified by the respondents was

the lack of connection between ICT experts and clinicians, which could lead to the inappropriate selection of software that is not user-friendly. Also there might be issues regarding



confidentiality of data and also software is very costly. 58% physiotherapist found that telerehabilitation is not valid tool for current health care set up, 51% physiotherapist told that telerehabilitation is not improving quality of life. 60% physiotherapist suggested that telerehabilitation is not helpful in maintaining patient privacy and confidentiality. 44% physiotherapist found lack of communication while implemented telerehabilitation. Telerehabilitation software is lacking in clinical usefulness. 46% physiotherapist showed positive approach in this aspect. 35% physiotherapist have suggested that the software for telerehabilitation is costly and 29% found that it might increase workload.

## **Discussion**

According to the study most of the respondents were in favor of using telerehabilitation during COVID 19 pandemic. The Physiotherapists used different platforms, such as What'sApp, Zoom, and Skype, to conduct video-call sessions. On these various platforms they can guide and consult the patients. This study found that the PTs surveyed had positive perceptions of telerehabilitation and showed an interest in learning or improving the skills necessary to implement telerehabilitation in their practice, despite the lack of adequate infrastructure and support to implement telerehabilitation. In this study we found some positive responses from physiotherapist for usage of telerehabilitation. Here 44% physiotherapist found lack of communication between ICT experts and clinicians as they may not be available during COVID 19 pandemic. Some previous studies wherein PTs reported that limited access to technical support at their facilities was behind them for not adopting telerehabilitation<sup>6, 7</sup>. Similarly, in a qualitative study conducted in Australia, the majority of healthcare providers said that telerehabilitation sessions would be a suitable option for some patients with a history of neurosurgery or orthopedic issues, as the patients would not be required to travel to receive treatment<sup>6</sup>

The results show that many of the PTs found telerehabilitation technology helped them to provide physiotherapy services to rural areas. The physiotherapist also believed to provide treatment with telerehabilitation during COVID 19 however, some of the PTs still preferred to practice physiotherapy via conventional in-person methods. This could be due to the nature of the physiotherapy profession, which requires a proper observation, physical presence and hands-on interventions. It was also found that telerehabilitation saves time for home visits, hospital and clinics. It is imperative that patients have their initial assessments in the clinic and then continue remotely as follow-up due to the difficulty in practicing some assessments and treatments through telerehabilitation systems. In present study physiotherapists also found some difficulty in assessment of patients. In previous studies, where the healthcare providers preferred the initial appointment to be face to face, in order to establish patient-clinician rapport and practice objective hands-on techniques<sup>6-8</sup> It is challenging to practice hands-on skills through telehealth systems; as suggested in previous studies<sup>6, 7</sup>.

Previous studies have reported that inadequate infrastructure (such as poor internet coverage, inadequate internet services, or network failure), the unavailability of telecommunication devices, and a lack of computer literacy are also barriers to the implementation of telerehabilitation<sup>9, 6, 8, 11, 12</sup>. Similar results were found in the present study. In the present study physiotherapist also suggested that some barriers as telerehabilitation is not valid and also it will not maintain confidentiality of data. Similar results were noted in in previous studies that found that patient safety and privacy are issues that could be compromised during the delivery of teleservices<sup>6, 11, 13</sup>. In the present study many issues were found regarding technology and this result is supported by A systematic review which indicated that the strongest barriers are technology related but can be overcome through training<sup>14</sup>. Here we have noticed that telerehabilitation is not useful in current healthcare set up.

## Conclusion

Due to COVID 19 pandemic physiotherapist cannot deliver traditional treatment to each and every person on daily basis. So for rehabilitation purpose telerehabilitation is alternative mode of treatment. Telehealth has been broadly used, and its impact on users and providers has been explored by many researchers. This study showed different facilitators and barriers for telerehabilitation. In this study physiotherapists have suggested different aspects like it is simple to use, it saves time, patient and physiotherapist satisfaction, reduction in work hours, Video based treatment with these techniques. But in contrary some barriers were noticed like data confidentiality, not valid tool, not giving proper assessment, not improving QOL of patient. But in current pandemic situation it is best option to rehabilitate the patients.

**Limitation and future scope-** Respondent's bias may be involved in self-reporting knowledge, attitude and need for necessary equipment to implement Telerehabilitation in physical therapy settings. Further, we also suggested that the future study must include an open-ended questionnaire or interview method for respondents to explore the actual knowledge, attitude towards Telerehabilitation. Also, quality studies that would evaluate the performance of telerehabilitation in settings where it is being practiced during the pandemic would contribute significantly to what is known already about the field.

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