

Original Research Article

Feasibility of tele-rehabilitation in low resource setting: perceived barriers and facilitators among physiotherapy professionals

Anulucia Augustine¹, Priyadarshani Katalkar^{2*}, Divya Kokal³

¹Department of Cardiovascular and Respiratory Physiotherapy, MGM COP, Navi Mumbai, Maharashtra, India

²Department of Neurophysiotherapy, MGM COP, Navi Mumbai, Maharashtra, India

³MGM College of Physiotherapy, Navi Mumbai, Maharashtra, India

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*Correspondence:

Dr. Priyadarshani Katalkar,

E-mail: katpriya17@gmail.com

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ABSTRACT

Background: Robust evidence illustrates the significance and efficacy of telerehabilitation to optimize the participation in rehabilitation program taking into account organisational, geographical and transportation aspects. Despite knowing the remarkable benefits, there exist an array of challenges to implement telerehabilitation services in a setting with meagre resources. In order to augment the uptake of telerehabilitation services, our study aims to explore the perceived barriers and facilitators to telerehabilitation among Physiotherapy professional in a resource limited setting.

Methods: A cross-sectional survey was conducted among physiotherapy professionals in Maharashtra using a questionnaire with a content validation index of 0.95. The survey sought to ascertain the awareness, barriers, facilitators and strategies to improve practice of telerehabilitation.

Results: A total of 450 Physiotherapists were invited, of which, 201 participated in the study. The major barriers to telerehabilitation were inaccuracy in obtaining adequate information (n=149, 74%), lack of face-to-face monitoring (n=131, 65%) and physical limitation in older adults (n=114, 57%); on the other hand, the facilitators were reduced transportation time to hospital/clinic (n=132, 67%) and improved accessibility to healthcare services (n=125, 62%). The factors that enabled the patients to participate were flexible appointment schedule (n=139, 69%) and minimal transportation costs (n=129, 64%). Furthermore, the participants majorly considered encouraging patients' appropriate environment, insurance coverage, training and upskilling of clinicians as the strategies to improve practice.

Conclusions: The implementation of telerehabilitation program has been limited due to perceived constraints associated with various organizational, geographical and patient factors. However, physiotherapists reported strategies to improve practices could be implemented to accelerate the utilization of telerehabilitation services.

Keywords: Challenges, Enablers, Low-resource settings, Physical therapy, Telehealth

INTRODUCTION

The virulent and unpredictable nature of COVID 19 resulted in adoption of telehealth making it imperative and impending in delivering rehabilitation services. Telerehabilitation is an alternative reliable approach to deliver rehabilitation program remotely when compared to conventional Institutional based rehabilitation.¹ In recent times, the progress in communication and information technologies has significantly enhanced the

dialogue between healthcare professionals and patients aiding in successful follow-up.² Additionally, technologically driven treatment program consist a range of rehabilitation services such as symptom assessment and monitoring, exercise planning and supervision, and lifestyle modification that address comorbidities in real-time, thereby improving self-efficacy and determination to maintain long-term adherence with rehabilitation programs with minimal support.^{3,4} In the past few years, various studies have demonstrated the efficacy of

rehabilitation program delivered via tele-health in various chronic neurological, respiratory, cardiac and orthopaedic conditions.^{5,6}

Robust evidence illustrates the significance of telerehabilitation to optimize the participation in rehabilitation program taking into account organisational, geographical and transportation aspects.¹ Flexible work hours, providing a cost-effective rehabilitation program, reducing patients travel time and transportation costs to attend clinics are some of the highlights of telerehabilitation.⁸⁻¹⁰ There are several reported barriers of telerehabilitation from high resource setting such as computer literacy, poor internet connectivity, lack of therapist-patient physical contact, patient safety and privacy. Despite knowing the remarkable benefits, there exist an array of challenges to implement telerehabilitation services in a setting with meagre resources.¹¹

Globally, extensive study has been carried out to understand the feasibility of telerehabilitation among various health-care professionals to accelerate the healthcare service; however, there is a dearth of literature among allied health professionals exploring the use of telerehabilitation in low resource setting. Furthermore, to augment the uptake of telerehabilitation services and to enhance the participation of patients with chronic diseases in rehabilitation program; our study aims to identify the perceived barriers and facilitators to telerehabilitation during COVID 19 among physiotherapy professional in a resource limited setting.

METHODS

This cross-sectional study was conducted amongst Physiotherapy professionals in Maharashtra to assess the barriers and facilitators of Tele-rehabilitation from April to June 2021. Approval was obtained from Institutional Ethics Committee, MGM College of Physiotherapy, Navi Mumbai, Maharashtra. Physiotherapy professionals in the state of Maharashtra were included in the study, whereas, students pursuing graduation in Physiotherapy and Interns were excluded. A content validated questionnaire with a total of open and closed ended questions were used in the survey.

The questionnaire was developed following an extensive literature review. The questionnaire addressed domains such as demographics, barriers, facilitators and future scope of Tele-rehabilitation. The questionnaire was validated using Lawshe's technique for content validation.¹² The final draft of the questionnaire was validated by a panel of six subject experts in the field of physiotherapy. Questions with Content Validity Ratio (CVR) of equal to more than 0.78 were retained. Content Validity Index (CVI) of 0.98 was obtained in our study which was well above the determined cut off of 0.8. Five independent physiotherapy interns piloted the online survey for readability and face validity. Piloting identified

any unanticipated problems and ambiguity concerning to instructions and questions as well as recognized the time required to complete the survey. Minor changes were only identified requiring modification for enhancing clarity on a couple of questions, and the online survey was finalized for distribution.

Following the development, the questionnaire was administered to the physiotherapy professionals through an invitation to participate by a survey link using an online platform Google form. The email addresses of the physiotherapists were obtained by Maharashtra state physiotherapist council and snowball effect was used to increase the response rate. Questionnaire details and link to inform consent was provided in the email. Voluntarily opening and clicking the link implied consent. Participants were given one week time to complete the survey. Follow up emails were sent twice to the participants prompting completion of the survey after the initial email, aiming to optimize response rate.

Responses were analysed using the SPSS Statistics for Windows, version 16.0 (SPSS Inc., Chicago., Ill., USA) to obtain descriptive and frequency analysis of the data.

RESULTS

A total of 450 physiotherapy professionals were invited in the study and 201 agreed and their responses were collected, giving this study a response rate of 44.6%. The remaining did not respond to any follow-up reminder emails and hence were not contacted further. Amongst the participants 53% (105) of them were practicing in private clinic whereas 27.4% in government hospitals. The average work experience of the participants was 8±5 years. Approximately more than half of the participants were totally aware about tele-rehabilitation (71%, n= 143) and 28% (56) were somewhat aware. From those who were aware about Tele-rehabilitation, only 46% (92) of the participant responded that they were delivering rehabilitation services via tele-health (Figure 1).

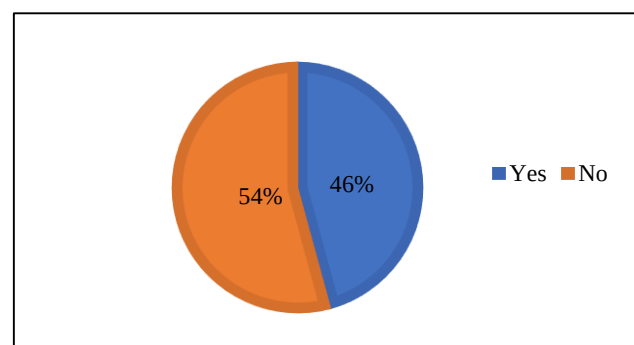


Figure 1: Professionals practising telerehabilitation.

Majority of the participants consulted on an average one to five patients per week using mobile health services such as mobile phones, tablets, video conferencing application i.e., Zoom (Figure 2 and 3).

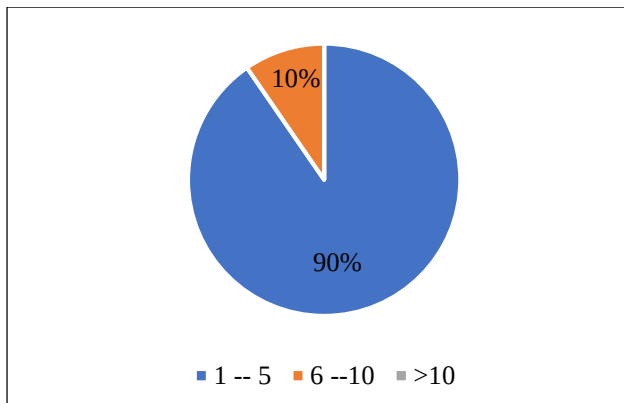


Figure 2: Average number of patients consulted via telerehab in a week.

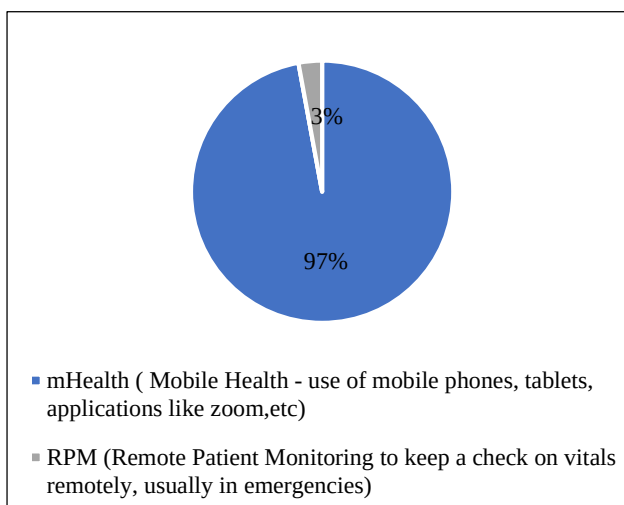


Figure 3: Modes of telerehabilitation.

Barriers to tele-rehabilitation perceived by physiotherapist

The major challenges reported by the participants while delivering Tele-rehabilitation services were inaccuracy in obtaining adequate information (74%, 149), lack of face-to-face monitoring (65%, 131), events of technical disturbances (60%, 120) followed by physical limitations especially encountered in older adults (57%, 114) (Figure 4).

Facilitators to tele-rehabilitation perceived by physiotherapist

According to the physiotherapists, the major factors reported that would influence the use of tele-rehabilitation services were it saves patient's time travelling to hospital/ clinic (66%, 132), improves patients access to healthcare services (62%, 125), provides patients healthcare needs (56%, 113). Followed by clear communication between therapist and patient (49%, 98) and simple to use (35%, 70).

Adjuncts reported by the physiotherapists to overcome the limitation to tele-rehabilitation

According to the physiotherapists who responded, following factors were reported as an alternative to support the use of tele-health like insurance cover for tele-rehabilitation services (64%, 129), encouraging patients for appropriate environment within the available resources (65%, 131), training and upskilling of healthcare professionals for information and communication technology (63%, 126), trust and acceptance towards tele-health (62%, 125).

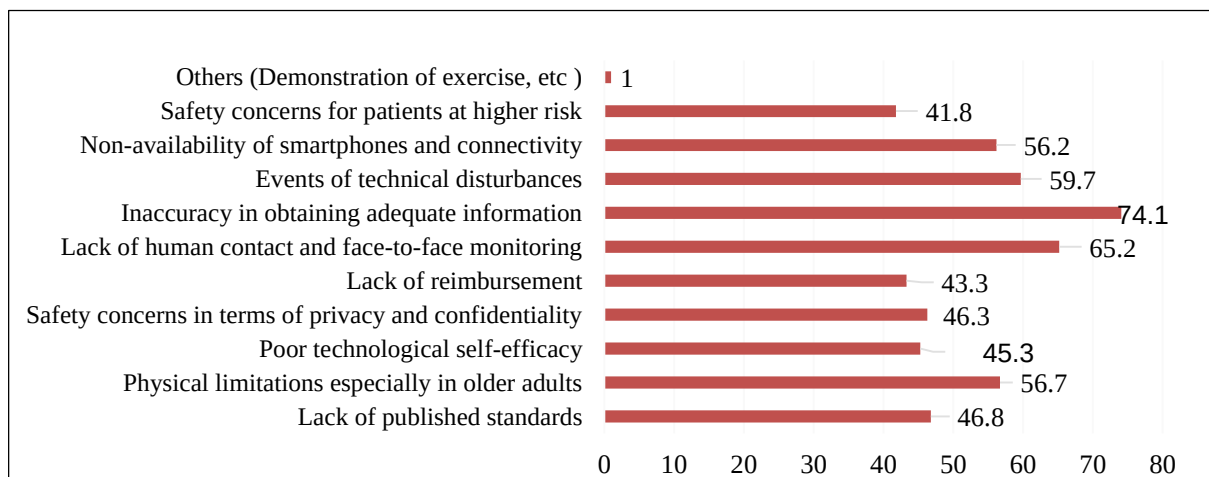


Figure 4: Telerehabilitation barriers.

Level of satisfaction of tele-rehabilitation services reported by physiotherapists

The participants were asked about their level of satisfaction using tele-rehabilitation services, majority of

them reported that it was a boon during COVID-19 pandemic (84%, 168). More than half of the participants agreed that the tele-health is an acceptable and accessible mode of healthcare services respectively [63%, (127); 61%, (122)] (Figure 5).

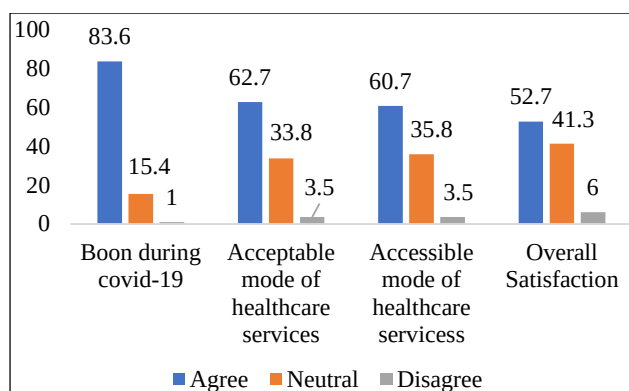


Figure 5: Level of satisfaction of telerehabilitation services.

DISCUSSION

Telerehabilitation is an emerging concept in the India and especially in an allied health profession like physiotherapy. This study aimed to identify the barriers and facilitators to the use of telerehabilitation. The results are discussed under following domains:

Barriers to telerehabilitation perceived by physiotherapists

Considering the factors that are the possible barriers for a therapist while delivering healthcare services, majority of the therapist believed it to be inaccuracy in obtaining adequate information from the patient since the therapist will have to rely on patient for subjective information which would have been otherwise derived from HANDS-ON. Survey research done by Soni et al also supports these findings, reasoning lack of face-to-face monitoring and physiotherapist-patient contact. Events of technical disturbances and non-availability of smartphones were also the barriers faced majorly.¹³ Narekuli et al also encountered similar infrastructural barriers in their study because of bandwidth issues leading to pausing of videos. Besides these factors, poor technological self-efficacy of the therapist leading to difficulty in delivering telerehabilitation services, for instance, efficiency in using apps for delivering telerehabilitation was also observed in this study.¹⁴

Lack of reimbursement was one of the least reported barriers, although it supports the evidence from other studies across various countries. A study done by Aloyuni et al in Saudi Arabia reported high-cost implementation of telerehabilitation since it does not get covered under insurance policies.¹⁵ Moreover, a study done in India by Narekuli et al.¹⁴ reveals that the ease of use of this technology was found to be a common hurdle which was expected in this study too, since elderly patients needed repeated instructions for understanding the procedure of video-conferencing. However, on the contrary, this was the least found barrier which is in contrast to the above-mentioned study, since nowadays use of smartphones has

increased, thus reducing chances of difficulty in understanding and using the internet technology.

About 86% physiotherapists perceived that lack of computer literacy has one another challenge for implementation as the patient refuse to participate in technology driven rehabilitation services. This is finding resonates with the study by Albahrouh et al.¹⁶ In a developing country like India, patient's level of education is still a matter of concern. This study found that many patients showed lack of interest because they were not very well educated. Furthermore, people living in remote areas where their geographical location is not developed enough to withstand advanced internet connectivity bothered many patients to accept this technology of m-health (mobile health). Many other Indian studies on telerehabilitation observed similar findings. Tajane et al in their study mentioned location as their highly faced barrier.¹⁷ Patient's physical limitations like visual, hearing, cognitive or fine motor impairments have also proved to be a major obstruction to telerehabilitation practise because patient would have to be then more dependent on a caregiver, where caregiver's digital literacy would give rise to another barrier.

Furthermore, issues bordering on ethical ground such as lack of confidentiality, patient privacy, abuse of use by patients, internet fraud and quackery have been identified in this research as challenges to implementation of telerehabilitation in India. Similarly, these challenges to telerehabilitation have also been identified in the developed nations. For instance, in Canada, the Canadian Alliance for Physiotherapy Regulators (2006) documented that potential for increased risk of fraud because of the elimination of face-to-face contact, increased ease of unauthorized individuals posing as registered practitioners, increased potential for providers to practice outside of their scope of practice, and potential for decreased security of information are concerns and challenges related to telerehabilitation.¹⁸ These findings are also in accordance with the Odole et al, in their study and they also found these challenges perceived by physiotherapists in Nigeria.¹⁹

Facilitators to tele-rehabilitation perceived by physiotherapists

Conversely, there were many factors that enhanced the use of tele-rehabilitation. On the peak it is considered as time saviour for the patients so they don't have to travel to hospital/clinic. This is also clearly evident in the study done by Soni et al stating that the patients living in remote places where traditional rehabilitation services may not be easily accessible, can benefit from tele-rehabilitation.¹³ Even during the Covid-19 pandemic, where the government had put up lockdown policies, the rehabilitation services would have come to a standstill. In such times, Tele-rehabilitation has proved to be a boon in delivery of healthcare services, thus improving patient's access to rehabilitation services.

Since the patient doesn't have to travel to hospital/clinic, it saves their transportation cost and hence it becomes cost-effective and conveniently accessible for the patient to engage in tele-rehabilitation.

Adjuncts reported by the physiotherapists to overcome the limitation to tele-rehabilitation

In addition, our study also identified the factors that would serve as an alternative to bypass the limitation and optimise the utilization of tele-rehabilitation services. About 65% therapists believe that encouraging patient's appropriate acoustic and visual environment by eliminating background noises as much as possible, adequate lighting etc has proved to be one of the major adjuncts to support the limitations pertaining to environmental barriers. Insurance coverage especially in COVID-19 pandemic has proved to be one of the major alternatives in our study. On the contrary, Aloyuni et al reviewed study reported lack of reimbursement as a major factor which increases the cost of implementation of healthcare services.¹⁵ The above-mentioned study also reported lack of staff skills as a major obstacle to telerehabilitation. In our study too, upskilling and training of clinicians is suggested by majority of the population.

Furthermore, various research evidences lead to increased trust and acceptance to tele-health. Advancements in internet technology was expected to be one of the most important factors in our study, however the contribution to this factor as an alternative was 47%. Nevertheless, the fact that infrastructural changes in India are yet to be developed maybe the reason for why the results were in contrast to our expectations.

CONCLUSION

The implementation of telerehabilitation program has been limited due to perceived constraints associated with various organizational, geographical and patient factors. However, Physiotherapists reported strategies to improve practices could be implemented to accelerate the utilization of telerehabilitation services.

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