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Awareness Of Tele-rehabilitation In The Treatment Of Musculoskeletal Injuries Among Rehab Professionals Of Tertiary Care Hospitals

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Abstract

Background:

Telemedicine is a broad term; it is used to provide long-distance medical services by medical practitioners. It has become an efficient alternative approach for delivery of rehabilitation care. Telerehabilitation, regardless of place or time, can help maintain successful rehabilitation.

Methodology:

It's a cross-sectional study that was conducted in Ziauddin college of rehabilitation sciences. The sample size to be studied was 374 including clinical professionals' physiotherapist and occupational therapist. The data was collected by participants through online questionnaire and in person.

Result:

According to the survey, healthcare workers are majorly aware of the term tele rehabilitation, and their major source of awareness is through social media. The Physiotherapists of the age group of 25-30 with 1-2 years of experience were more aware of this practice. Healthcare workers believe that the treatment goals of musculoskeletal-related injuries can be achieved more effectively than community based treatments. The connectivity issue is the main barrier that moderately hinders the treatment goals. Other than that consultation services are offered more while using telerehabilitation than the follow ups or for the diagnosis criteria's. Tele-rehabilitation services are somewhat acceptable in Karachi according to the responses of the healthcare workers but it further needs ample amount of recognition and amelioration.

Conclusion:

Tele rehabilitation still leaves plenty of room for improvement which can be effectively achieved through prevailing awareness, carrying out workshops and seminars to teach advanced tele rehabilitation services and through conducting further researches on this domain.

Keywords:

Telerehabilitation, Rehab professionals, Awareness, Musculoskeletal injuries, Tertiary care hospitals, Technology.

Introduction

Telemedicine is a broad term; it is used to provide long-distance medical services by medical practitioners (1). It has become an efficient alternative approach for the delivery of rehabilitation care as it minimizes damage and maximizes the abilities of the patient. It offers a more structured, specialized, and reliable service to the old-pattern way of direct person to person therapy sessions (2). The inherent charm of telemedicine is its capacity to overcome fundamental hurdles to access such as distance, disability, and lack of competent health practitioners (3). Telerehabilitation uses simple technologies such as mobile phones and video conferencing to provide treatment and also enable the therapists to follow up with their patients while they perform rehabilitation exercises and tasks at their own homes, that is, their most natural environment (4). The successful implementation of telerehabilitation (TeleRehab) programs, including geographical barriers and quality of treatment, has the ability to address critical problems facing healthcare institutions. The best healthcare program that delivers the best services to remote patients (5). In order to successfully introduce Tele Rehab, however, a study on the willingness for preparation is considered a day key criterion since the fortunate application of a change (6). To date, nothing is acknowledged about the fulfillment with physiotherapy of the members seeking telerehabilitation and the health care specialists providing the services. The principal predictor of the degree of effectiveness is happiness. A high degree of satisfaction raises the motivation of the patient and enhances compliance with the procedure (7). From 2002 to 2004, the extraordinary rise in the number of patients served by telerehabilitation was noticeable. Following a subsequent

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decline, beginning in 2007, the number of patients supported by telerehabilitation increased, possibly due to the development of technology and the overcoming of the doubts faced by all technology (8). A fresh appearance was provided by the method of providing rehabilitation to patients by telerehabilitation. The use of telecommunication technologies to provide recovery assistance from an interval is a sub-group of telemedicine, telerehabilitation (9). Documentation shows that robotic telerehabilitation systems are able to extend effectively which are based on advanced telerehab services between remote areas that are required for health care (10). Telerehabilitation, and supervision by means of telecommunications technology, succor nullify the issues through authorized delivery of care straightly to the patient at home (11). Telerehabilitation delivers a better and more effective way of providing health care services while maintaining social distancing practice in quarantine situations as well (12). As Covid-19 is the biggest threat to the world right now, physical therapists also play their role by attending patients on conference calls and in critical care or intensive care units as well as in general medical Covid-19 floors (13). Pediatric rehabilitation services are provided to children all over the world as a result of functional impairments that affect their quality of life. The pandemic of the Coronavirus posed immediate problems to the rehabilitation community, which provides occupational therapy, physical therapy, and speech-language pathology treatments to children, adolescents, and young adults. These services are provided by therapists in the pediatric sector through the educational or health-care systems. While the epidemic has hastened the usage of TR as a result of higher reimbursement and necessity, academics have only looked into the advantages over the last decade (14).

The efficacy of this has been evaluated on patients' functional efficiency, level of satisfaction, and cost-effectiveness of the system and it has been observed that home-based telerehabilitation by video call tools will improve the accessibility of the rehabilitation administered and can be checked as traditional therapy (15). In today's world, where technology has prevailed in human life more than ever, the healthcare field has not stayed anywhere behind, in fact, it has made massive gains in recent times. These advanced developments has motivated health care professionals to provide patients with advanced services and care. Telehealth and telerehab are its principal examples. Telerehabilitation has been recognized well in Saudi Arabia and now widely spreading, it does not only save travel expenses but also plays a great role in providing health facilities to female patients as gender segregation is a social norm in Saudi as discussed in the following article (Amin et al., 2020). On the other hand, telerehab and telemedicine are a main source of providing health care facilities in rural areas where severe health issues are present and health facilities are lacking as every patient wants to meet the health care provider at their convenience and telemedicine saves their time and is most effective as well as mentioned in following article (16).

Implementations of new technologies can improve the productivity of healthcare departments. Telehealth is like a remote clinical service that provides numerous benefits. But on the other hand, undesired barriers are hurdles between patients and clinical professionals making it difficult to adopt telerehab successfully (16). So the necessity of efforts especially from technology developers, rehab care providers and, policy makers are needed in order to remove these barriers (17).

The most important precondition of the implementation of this technology requires checking awareness among the telerehabilitation experts as this technology is new and emerging in this country (18). If we talk about Pakistan 70 percent population belongs to rural areas where health care facilities are not available, and in these circumstances, telerehab is a great source of help for this population with the help of mobile phones which are being used by every individual nowadays and are widely common. Regardless of any Time and location, telerehabilitation can provide low-cost services comparatively. It can be an alternative for disabled persons who are unable to physically visit rehabilitation centers daily. CBR system is improved in developing countries where people cannot afford rehabilitation services because of its high costs and number of sessions (19). Virtual reality involving the rehabilitation process that has been used by many physicians and researchers that provide alternative health procedures to be practiced in safe environment (20).

So, considering all the benefits that this technology has to offer, it is important to find out who will be the ones to apply this technology when implemented, and who can be experts to have the most reliable and updated knowledge about this technology and its requirements in the rehabilitation domain. Although several articles have set an examination of the historical use of telerehabilitation in the field of musculoskeletal injuries among healthcare professionals, here we will be reviewing the current trends of tele rehab's application, benefits, restrictions, blockades, recommendations, and requirements for the recent as well as future modification of telemedicine services along with the application of evidence based physical rehab and occupational therapy practices (21). Telerehabilitation is a new emerging and developing technology that provides home based services to people, and reduces their travel time and cost. Right now, it has a lot of challenges to face due to the lack of awareness and exposure to E-health knowledge and towards implementation of new technologies.

The goal of this study is to find out the level of awareness of telerehabilitation in Pakistan. In this study, we paid attention to the importance of tele rehab and how it is

being used worldwide and benefiting patients. The outcome and result of this research provided us with information that how widely this telerehabilitation is being used in Pakistan and the level of awareness of it among physical therapists as well as this study has also provided information on telerehab and its effectiveness that will be going to help physical therapists and patients, hence making the use of telerehab common in Pakistan by providing evidence on its efficacy.

Objectives

To explore the awareness of telerehabilitation in the treatment of musculoskeletal injuries among rehab professionals through self-administered questionnaire.

Methodology

Study setting

This study was conducted at Rehabilitation Department of tertiary care hospitals including Dr. Ziauddin Hospital, Liaquat National Hospital, Dow University Hospital and Agha Khan University Hospital of Karachi, Pakistan. This Cross-sectional study took 6-8 months after approval of synopsis. While Physical therapists and Occupational therapists of Tertiary Care Hospitals were taken as the target population. Non- Probability Convenience Sampling Technique was used, and the sample was calculated using online software Open EPI, open-source calculator version 3.01, considering a study conducted in Tehran entitled "The Level of Awareness of Rehabilitation Professionals Employed in Rehabilitation Academic Centers Regarding Tele-Rehabilitation Technology". Therefore, at 95% CI and 5% bound of error, a sample of 374 was calculated. Physiotherapists and Occupational Therapists of Tertiary care hospitals, Both male and female with a minimum of ≥1 year of experience were taken as an inclusion criterion whilst half-filled Questionnaires, withdrawal Questionnaire, and primary Care Hospitals were excluded. The questionnaire was divided into three parts, the first part was comprised of 5 questions about the level of awareness, the second part was having 6 questions related to the implementation of telerehabilitation in patient's care and the third part was having 9 questions about experienced in use of telerehabilitation in Pakistan. Physical therapist and Occupational therapist from a Rehabilitation hospital database were contacted by the research team and study information was provided with written assurance of not sharing the personal information with the others. The questionnaire was designed by first formatting the consent form and participants completed the consent by certifying that they had been provided well-grounded information according to best of their knowledge

Results

A total number of 320 physical therapists participated in this study with highest age range reported in 25-30 years (76.3%), majority of the participants were females i.e. 246 (76.9%), whereas 242 (75.6%) are DPT graduates with 183 (37.2%) having clinical experience of 1-2 years. The demographic detail of the participants describes in the Table-1.

Table - 1 Demographic Details of Participants

Variables	N (%)
Age	
25-30 years	244 (76.3%)
31-35 years	35 (10.9%)
36-40 years	23 (7.2%)
41-45 years	14 (4.4%)
46-50 years	4 (1.3%)
Gender	
Male	74 (23.1%)
Female	246 (76.9%)
Qualification	
DPT	242 (75.6%)
DOT	7 (2.2%)
BSPT	18(5.6%)
BSOT	15 (4.7%)
MPhil	37 (11.6%)
PhD	1 (0.3%)
Clinical Experience	
1-2 years	183 (57.2%)
3-4 years	64 (20%)
More than 5 years	73 (22.8%)

Out of 320 participants' majority were found to be aware of the term telerehabilitation. In which 32.2% (N = 103) of the participants have not used the technology but has its awareness. As per the statistics, social media was the major contributor in the awareness of word telerehabilitation i.e. 33.1% (N= 106). Furthermore, it was found that 38.4% (N = 123) of the respondents were agreed up to consultation for offering telerehab services. The further detail of the participants is depicted in the below graphs and table.

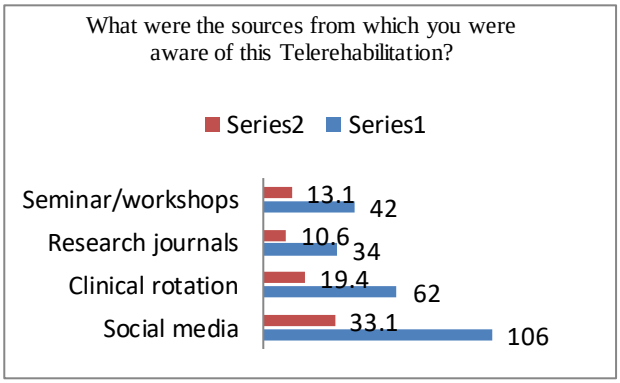

Figure 1: Source of awareness of Telerehabilitation

According to the statistics, 148 participants agreed that the patient's believes plan and goals were achieved successfully. 16.6% participants were satisfied with the home-based treatment whereas majority had some queries. Out of 320 participants majority of 113 participants agrees that the telerehabilitation services may influence the health status of the patients. Less than one hour was believed by 42.8 % majority participants were engaged in telerehabilitation session. Statically majority 58.1% believes patients were satisfied where as 8.4% were dissatisfied.

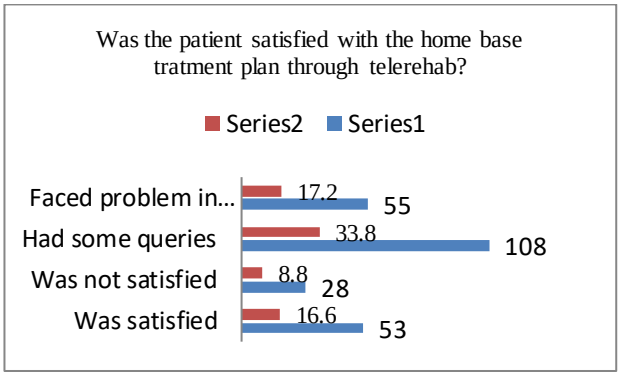

Figure 2: Patient satisfaction level using TR

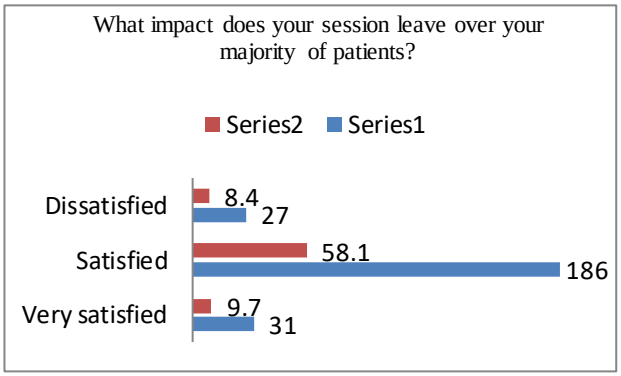

Figure 3: Impact of TR on patients

38.8% marked yes as they faced difficulty in delivering quality of care through telerehabilitation. Out of 320 majorities of 77 participants neither satisfied nor dissatisfied with personal comfort in using telerehabilitation. 158 participants agreed that the exercise intervention is compromised whereas 9.4% of participants were disagreed. 147 moderately agreed that they faced hindrance of connectivity issues, mobile and laptop. Majority participants agreed that the telerehabilitation services save them from traveling. 45% neither nor dissatisfied and 10% were very dissatisfied to follow the complete instructions. 49.7 % (159) majority good as traditional face to face assessment.

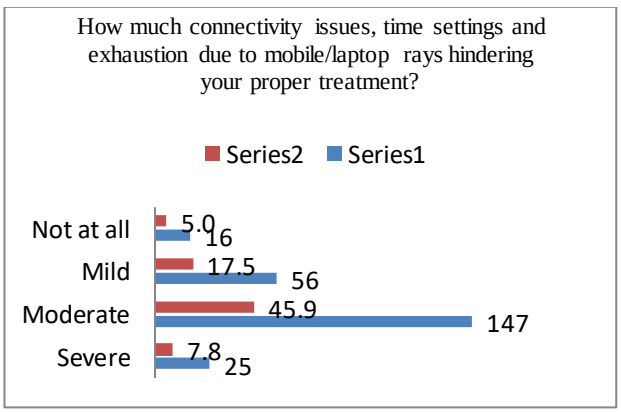

Figure 4: Hindering factors in effective treatment

Discussion

The result of this study predicts positive signs for the future of Telerehabilitation, as majority of rehab professionals are aware of TR and know how to use it. The purpose of the study was to explore how well rehab professionals of tertiary care hospitals in Pakistan are aware of Telerehab and their feasibility and confidence in use TR as a mode of therapy option for MSK related injuries. In this research, we get to see a large number of healthcare professionals including physical therapists and occupational therapists who conduct their telerehab sessions via social media. In our sample size, 76% majority show a willingness to use TR which is a key finding of our research, most of the population of this study is comfortable using telerehabilitation and the output of their treatment is intensely successful while using telerehabilitation.

Telemedicine is known as a new technology and it needs to be used in Pakistan as well, Pakistan telerehabilitation is only being practiced by well-reputed and higher organizations one of the famous institutes of telerehabilitation is managed by the Pakistan army but sadly it approach is only limited to few reputed private sectors and not in public sectors, Similarly while collecting the data we observed that telerehabilitation is well managed by reputed tertiary care hospitals in Pakistan and some of these hospitals have their separate team to lead telemedicine but on the other hand, when we visited area wise hospitals it was prominent that majority of these hospitals were so clueless about the basic idea of telerehab, and for that reason, there is a great need to spread awareness among all the rehabilitation units and hospitals because of its great benefits among patients.

As discussed in this study, home-based telerehabilitation is provided to the patients. TRP solution is categorized into virtual reality-based communication, sensory device-based, and image environment-based TRP, face to face video conferencing was established to perform live video calls, and video chats via cellphone gadgets between patients and health care professionals. Home based telerehabilitation is considered cost effective and many improved rehabilitation services using video conferencing (22).

Compared to other studies, TR benefits may be the finest choice for domestic rehab administration effective conveyance and fetched adequacy (23). Telemedicine allows for saving clinical data and providing real-time interaction between clinician and patient (23,24). Telerehab can also facilitate people who cannot visit hospitals due to their disabilities (25). A Canadian-based study observed results compared between telerehabilitation and home visits in the patients of total knee replacement and found positive results for the telerehabilitation group (26). To examine the efficacy of telerehabilitation in stroke patients, an RCT study was

performed. The outcome showed that telerehabilitation can be successful in motor functions, ADLs, independence, and quality of life as normal. This study highlights the potential of telerehabilitation to be an alternative model of care and also provide benefits in practice settings i.e. greater access and great efficiency (27).

Limitations

TR has the potential to be both cost-effective and widely available throughout Pakistan. Despite having numerous benefits of TR, the awareness and knowledge of Pakistan-based health providers are insufficient in terms of information and communication technology (ICT), Telerehab is still in its suffering phase. The challenges we came across during the research were a lack of exposure to TR, Lack of awareness of TR protocols, professional acceptance of new developmental technologies, Patient satisfaction, technical ignorance among service providers and receivers, social acceptance, etc.

Conclusion

Telerehabilitation adoption study is still in its infancy, and it requires more attention from healthcare professionals. Indeed, studies on telerehabilitation adoption are necessary to avoid failures in implementation, since these studies will advise health-care professionals and consumers about successful adoption tactics. This study found a moderate body of evidence suggesting that telerehabilitation may be as beneficial as traditional care for motor function, ADLs, independence, satisfaction/quality of life, and other outcomes. These encouraging findings should be backed by further evenly conceptualized studies and visual mentality with high-quality strategy to supply conclusive proves on the impacts and possibility of Home-Based Treatment.

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