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TELE-TOOLS IN COMMUNITY REHABILITATION - REACHING THE UNREACHED

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Abstract
Community rehabilitation aims to improve the quality of life of persons with disabilities and their families by providing accessible and affordable rehabilitation services within their local surroundings. Despite this, the efficacy and accessibility of community rehabilitation services in India are hindered by several obstacles, including sociocultural factors, lack of trained personnel, and geographical distance. Tele-tools, which refer to the utilization of information and communication technologies (ICTs) for the provision and assistance of community rehabilitation services, present a promising alternative to address these obstacles and amplify the scope and effectiveness of community rehabilitation. This essay examines the several facets of tele-tools in community rehabilitation and offers suggestions for future study and implementation.

Introduction

Over 26.8 million individuals with disabilities reside in India, as per the 2011 census (1). Since persons with disabilities encounter numerous obstacles while trying to engage in society and get necessities like work, education, healthcare, and social protection, disability is not just a health issue but also a social and economic one (2). Poverty, prejudice, stigma, and exclusion frequently make these obstacles worse, and community rehabilitation breaks the cycle of disadvantage and disability (3) by collaborative efforts involving multiple stakeholders, including individuals with disabilities, their families, community members, health and social professionals, and local authorities. Most functional Aspects such as mobility, communication, cognition, activities of daily living, education, and employment can all be included in community rehabilitation programs, along with prevention, screening, assessment, intervention, intervention, follow-up, and proper referrals.

However, despite the potential benefits of community rehabilitation, many challenges limit its access and effectiveness, especially in India. Some of these challenges are 1) Geographical distance: Many people with disabilities live in remote and rural areas, where the availability and quality of community rehabilitation services are often poor or non-existent. Traveling to urban centres or specialized facilities can be costly, time-consuming, and difficult, especially for those with severe impairments or limited transportation options. 2) Lack of trained personnel: There is a shortage of rehabilitation professionals, such as physiatrists, physiotherapists, occupational therapists, speech-language pathologists, and psychologists, in India. Moreover, the existing rehabilitation workforce may lack

the skills, knowledge, and resources to provide appropriate and evidence-based services for people with diverse and complex needs. 3) Socio-cultural factors: Some people with disabilities and their families may face stigma, discrimination, and negative attitudes from their communities, which can affect their self-esteem, motivation, and willingness to seek and use community rehabilitation services. In addition, some cultural beliefs and practices may influence the perception and acceptance of disability and community rehabilitation, such as the attribution of disability to supernatural causes, the preference for traditional or alternative treatments, and the role of family and community in decision-making and care.

Tele-tools, or the use of information and communication technologies (ICTs) to deliver and support community rehabilitation services, offer a potential solution to overcome some of these barriers and enhance the reach and impact of community rehabilitation. Tele-tools can be broadly classified into two categories: synchronous and asynchronous. Synchronous tele-tools involve real-time interaction between the service provider and the service user, such as videoconferencing, telephone, or chat. Asynchronous tele-tools involve delayed interaction, such as email, text message, or web-based platforms. Tele-tools can be used for various purposes, such as assessment, intervention, monitoring, education, consultation, and supervision.

The use of tele-tools in community rehabilitation is not a new concept, as some examples date back to the 1990s. However, the rapid development and diffusion of ICTs in recent years, especially in India, have created new opportunities and challenges for the application of tele-tools in community rehabilitation. According to the International Telecommunication Union (ITU), approximately 5.4 billion people – or 67 percent of the world's population – are using the Internet in 2023. This represents an increase of 45 percent since 2018, with 1.7 billion people estimated to have come online during that period. the penetration rate of mobile-cellular subscriptions in India reached 88% in 2019, and the proportion of households with internet access increased from 4% in 2005 to 23% in 2019(1). Moreover, the COVID-19 pandemic has accelerated the adoption and innovation of tele-tools in health and rehabilitation, as a response to the restrictions and risks posed by the virus.

Some examples of teletools for rehabilitation and cognitive training are:

Virtual reality programs for rehabilitation exercises: These programs use immersive and interactive environments to simulate real-life scenarios and tasks that can improve the physical and cognitive abilities of patients. For example, GRADIOR is a virtual reality program that provides cognitive rehabilitation for people with mild cognitive impairment and dementia. It consists of a set of exercises that target attention, memory, language, executive function, and visuospatial skills. The program adapts the difficulty level and feedback according to the performance and preferences of each user(2).

Mobile apps for cognitive training: These apps use games and tasks to enhance the cognitive functions of healthy older adults and people with cognitive impairment. For example, "CogniFit" is a mobile app that offers cognitive training for various domains such as memory, attention, perception, reasoning, and coordination. The app evaluates the user's cognitive profile and creates a personalized training program that adjusts to the user's progress and needs(3).

Tele-consultation platforms for remote assessments: These platforms use videoconferencing and online tools to provide cognitive assessments and interventions for people who cannot access face-to-face services. For example, FesKits is a teleconsultation platform that delivers cognitive stimulation for people with dementia and their caregivers. It consists of a set of activities that stimulate different cognitive domains and promote social interaction. The platform allows the professionals to monitor the sessions and provide feedback and support to the participants(3). These teletools have several benefits, such as: They are accessible and convenient, as they can be used at home or in other settings without the need for travel or specialized equipment. They are engaging and motivating, as they use attractive graphics, sounds, and rewards to enhance the user's interest and enjoyment. They are effective and evidence-based, as they are designed and validated by experts and researchers to improve the cognitive outcomes and quality of life of the users.

Benefits of Tele-Tools in Community Rehabilitation

The use of tele-tools in community rehabilitation in India has several benefits. Tele-tools can improve the access and availability of community rehabilitation services for people with disabilities and their

families who live in remote and rural areas, where the conventional face-to-face services are scarce or non-existent(4). Tele-tools can also reduce the travel time and cost for both the service users and providers, and increase the convenience and flexibility of service delivery(5).

Tele-tools can enhance the quality and effectiveness of community rehabilitation services by providing evidence-based and standardized interventions, tailored to the needs and preferences of the service users(6). Tele-tools can also facilitate the monitoring and evaluation of the outcomes and impact of community rehabilitation services and provide feedback and support to the service users and providers(7).

Tele-tools can promote the empowerment and participation of people with disabilities and their families in community rehabilitation, by involving them in the design, implementation, and evaluation of the tele-tools, and by providing them with information, education, and self-management skills. Tele-tools can also foster the collaboration and coordination among various stakeholders, such as health and social workers, community members, and local authorities, and enhance the capacity and sustainability of community rehabilitation programs.

Tele-tools can reduce the cost and resource utilization of community rehabilitation services, by using low-cost and widely available ICTs, such as mobile phones and internet, and by optimizing the use of human and material resources, such as rehabilitation professionals and equipment. Tele-tools can also generate cost savings and benefits for the health and social systems, by preventing or reducing the complications and disabilities associated with chronic conditions, and by improving the productivity and well-being of people with disabilities and their families.

While tele-tools offer significant utility, they also present limitations and challenges. Tele-tools may face technical issues, such as poor internet connectivity, low bandwidth, unreliable power supply, and incompatible devices, which can affect the quality and continuity of community rehabilitation services. Tele-tools may also require technical skills and training for both the service users and providers, which may not be readily available or accessible in some settings. Tele-tools may lack the human interaction and rapport that are essential for the delivery and acceptance of community rehabilitation services, especially for people with disabilities who may have communication, cognitive, or emotional difficulties. Tele-tools may also pose ethical and legal challenges, such as ensuring the privacy, confidentiality, and consent of the service users, and complying with the regulations and standards of the service providers. Tele-tools may not be suitable or preferred for some types of community rehabilitation services, such as those that require physical contact, manipulation, or observation, or those that involve complex or sensitive issues, such as sexuality, abuse, or end-of-life care. Tele-tools may also not be culturally appropriate or acceptable for some people with disabilities and their families, who may have different beliefs, values, and expectations regarding disability and community rehabilitation.

Here are some guidelines and recommendations for the advancement and integration of tele-tools in community rehabilitation within India, considering ethical, legal, technical, and organizational considerations. 1) Ethical: Tele-tools should adhere to the ethical principles and standards of community rehabilitation, such as respect, autonomy, beneficence, non-maleficence, justice, and accountability. Tele-tools should also ensure the privacy, confidentiality, and consent of the service users, and protect their data and identity from unauthorized access or misuse. Tele-tools should also address the potential ethical dilemmas and conflicts that may arise in the virtual context, such as the quality and safety of care, the responsibility and liability of the service providers, and the cultural and social sensitivity of the service users. 2) Legal: Tele-tools should comply with the legal and regulatory frameworks of community rehabilitation, such as the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995, the Rights of Persons with Disabilities Act, 2016, the National Policy for Persons with Disabilities, 2006, and the National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act, 1999. Tele-tools should also follow the guidelines and standards of the Telemedicine Practice Guidelines, 2020, issued by the Ministry of Health and Family Welfare, Government of India, which provide the norms and protocols for the practice of telemedicine in India. Tele-tools should also be aware of the legal and regulatory differences and challenges across different states and regions of India and seek the

necessary permissions and approvals from the relevant authorities. 3) Technical: Tele-tools should use appropriate and reliable ICTs, such as mobile phones, internet, videoconferencing, web-based platforms, and mobile applications, that are compatible with the needs and preferences of the service users and providers, and the available resources and infrastructure in the community settings. Tele-tools should also ensure the quality and continuity of the ICTs, by providing adequate technical support and training, and by resolving the technical issues, such as poor internet connectivity, low bandwidth, unreliable power supply, and incompatible devices, that may affect the service delivery. Tele-tools should also adopt innovative and user-friendly ICTs, such as artificial intelligence, virtual reality, and wearable devices, that can enhance the effectiveness and efficiency of community rehabilitation services. 4) Organizational: Tele-tools should be integrated into the existing community rehabilitation programs and services and aligned with the goals and objectives of community rehabilitation, such as improving the quality of life, functioning, and participation of people with disabilities and their families. Tele-tools should also involve the collaboration and coordination of various stakeholders, such as people with disabilities, their families, community members, health and social workers, local authorities, and NGOs, and enhance their capacity and sustainability. Tele-tools should also be evaluated and monitored regularly, using appropriate indicators and methods, and the results and feedback should be used to improve and scale up the tele-tools.

Some examples of best practices or models for the development and implementation of tele-tools in community rehabilitation, based on the experiences of other countries or regions, are 1) Rehab on track-community rehabilitation best practice standards: This is a set of standards developed by the Community Rehabilitation Alliance in the United Kingdom, which provide recommendations for the delivery, monitoring, and evaluation of high-quality patient-centred rehabilitation. The standards cover various aspects of community rehabilitation, such as referral processes, rehabilitation interventions, rehabilitation pathways, patient outcomes, and service outcomes. The standards also include audit tools and infographics to help measure and improve the performance of community rehabilitation services. 2) A Proposal for Multidisciplinary Tele-Rehabilitation in the Assessment and Rehabilitation of COVID-19 Survivors(8): This is a proposal for an integrated post-discharge care pathway for COVID-19 survivors, which involves the use of tele-tools to facilitate the follow-up and rehabilitation by acute medical teams and specialist multidisciplinary rehabilitation teams. The proposal suggests using videoconferencing, web-based platforms, and mobile applications to offer remote assessment and therapy delivery to these patients. The proposal also discusses the benefits and limitations of tele-tools in community rehabilitation and provides suggestions for future research and practice. 3) A new community rehabilitation and reablement model(9): This is a model for community rehabilitation and reablement services in England, which aims to improve the outcomes and experiences of people with complex needs, such as frailty, long-term conditions, and disability. The model involves the use of tele-tools to support the assessment, intervention, and monitoring of these patients, and to enable the collaboration and communication among different professionals and agencies. The model also outlines the key components and principles of community rehabilitation and reablement, such as person-centred care, holistic approach, and integrated working.

In India, tele-tools have been used in community rehabilitation to provide access to services and information for people with disabilities, their families, and caregivers. Some real-life examples are: 1) Mobility India, an organization that works for the empowerment of people with disabilities, uses tele-tools to provide training, education, and awareness on disability, development, and rehabilitation. They use video conferencing, online learning platforms, and mobile applications to reach out to people in remote and rural areas. They also use tele-tools to monitor and evaluate their community-based rehabilitation (CBR) programs. 2) Caritas India, a humanitarian organization that works for the social development of marginalized communities, uses tele-tools to implement CBR programs in various states of India. They use video conferencing, online learning platforms, and mobile applications to provide training, counselling, and support to people with disabilities, their families, and caregivers. They also use tele-tools to coordinate and network with other stakeholders, such as government agencies, NGOs, and health professionals. 3) The International Journal of Indian Psychology(10) published a research paper on the use of tele-tools for community based rehabilitation of people with

severe mental illness in India. The paper discusses the benefits and challenges of using tele-tools, such as video conferencing, online learning platforms, and mobile applications, to provide psychosocial interventions, education, and awareness to people with severe mental illness, their families, and caregivers.
Recommendations on developing training programs for tele-tool usage, establishing partnerships, and conducting research

Developing training programs for tele-tool usage: Training programs for tele-tool usage should aim to enhance the knowledge, skills, and attitudes of the health care providers and the patients who use tele-tools for community rehabilitation. The training programs should be tailored to the specific needs and preferences of the target population, the type and complexity of the tele-tool, and the context and setting of the service delivery. Some examples of training programs for tele-tool usage are 1) A training program for telehealth in rural and remote emergency departments, which consisted of a 2-day workshop, a 6-week online course, and a 12-month mentoring program(11) 2) A training program for text messaging interventions for smoking cessation, which included a 1-day workshop, a web-based training module, and a 6-month follow-up support(12). 3) A training program for web platforms and digital health portals for diabetes self-management, which involved a 1-hour face-to-face session, a 30-minute phone call, and a 12-week online access(13).

Establishing partnerships between telecommunication companies and community rehabilitation organizations: Partnerships between telecommunication companies and community rehabilitation organizations can facilitate the development, implementation, and sustainability of tele-tools for community rehabilitation. Such partnerships can leverage the complementary strengths and resources of each partner, such as the technical expertise, infrastructure, and innovation of the telecommunication companies, and the clinical expertise, community relationships, and service delivery of the community rehabilitation organizations. One example of partnership between telecommunication companies and community rehabilitation organizations in India is partnership between “Enable India” and “Microsoft India” that created and deployed a digital platform for enhancing the employability and inclusion of persons with disabilities. The platform uses artificial intelligence and cloud technologies to provide online training, mentoring, and placement support to persons with disabilities. The platform also connects them with employers, mentors, and peers who can offer guidance and opportunities(14).

Conducting research to evaluate the effectiveness and cost-effectiveness of different tele-tools in community rehabilitation. Research to evaluate the effectiveness and cost-effectiveness of different tele-tools in community rehabilitation can provide evidence to inform decision-making, policymaking, and practice improvement. The research should be rigorous, relevant, and reliable, using appropriate methods, measures, and analyses. The research should also be ethical, transparent, and disseminated, following the principles, standards, and guidelines of the research community. Some examples of research to evaluate the effectiveness and cost-effectiveness of different tele-tools in community rehabilitation are:
* A systematic review of the effectiveness and cost-effectiveness of telehealth in rural and remote emergency departments, which synthesized the evidence from 35 studies and found that telehealth was generally effective and cost-effective in improving access, quality, and outcomes of care(11).
* A systematic review of the cost-effectiveness of digital health interventions, which summarized the evidence from 35 studies and suggested that digital health interventions were generally cost-effective in terms of costs and health outcomes(12).
* An umbrella review of the clinical and cost-effectiveness of telemedicine in the OECD, which reviewed the evidence from 25 systematic reviews and concluded that telemedicine was mostly effective and cost-effective in various settings and specialties(13).

Conclusion

Tele-tools are information and communication technologies that can be used to deliver and support community rehabilitation services for people with disabilities and their families. Tele-tools have several benefits, such as improving the access, availability, quality, effectiveness, empowerment, participation, collaboration, coordination, and cost-effectiveness of community rehabilitation services. However, tele-tools also have some limitations, such as technical issues, lack of human interaction, ethical and legal challenges, and cultural and social barriers. Therefore, tele-tools should be developed and implemented in a careful and context-specific manner, considering the needs and preferences of the service users and providers, and the available resources and infrastructure in the community settings. Tele-tools should also be integrated into the existing community rehabilitation programs and services and aligned with the goals and objectives of community rehabilitation, such as improving the quality of life, functioning, and participation of people with disabilities and their families. Tele-tools should also be evaluated and monitored regularly, using appropriate indicators and methods, and the results and feedback should be used to improve and scale up the tele-tools. Tele-tools are not a substitute, but a complement, for the conventional face-to-face community rehabilitation services, and they require the collaboration and coordination of various stakeholders, such as people with disabilities, their families, community members, health and social workers, local authorities, and NGOs. Tele-tools are a promising and innovative strategy for enhancing the reach and impact of community rehabilitation, especially in low- and middle-income countries, such as India, where the need and demand for community rehabilitation services are high, but the availability and accessibility of these services are low. Tele-tools can help bridge the gap between the service users and providers, and between the community and the health and social systems, and ultimately, contribute to the well-being and inclusion of people with disabilities and their families.

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