

CHAPTER I

INTRODUCTION

A. Background

Rehabilitation is an essential component of healthcare that aims to assist individuals who are experiencing or are at risk of experiencing disabilities according to the World Report on Disability (World Health Organization, 2011). It involves a comprehensive set of measures designed to help people achieve and maintain their optimal level of functioning in their interactions with the environment. Rehabilitation focuses on a person-centered approach, which means that the individual receiving rehabilitation services is at the centre of the process, and their unique needs and preferences are taken into account (Gutenbrunner *et al.*, 2015). Rehabilitation is an old field of medicine, but new telecommunication-based practices have emerged all over the world in recent years. These strategies in the field of rehabilitation are commonly referred to as telerehabilitation, which should be regarded as a telemedicine subcategory consisting of a system for remote rehabilitation control (Peretti *et al.*, 2017).

Telerehabilitation is the term used to describe the delivery of rehabilitation services remotely using information and communication technology (Kairy *et al.*, 2013). Telemedicine applications have grown in recent years as a result of the advancement of new computer science technologies and more advanced telemedical devices (Lang *et al.*, 2020). By different technology breakthroughs like videoconferencing, emailing, and texting, long-distance communication has become increasingly feasible. In addition, remote control of drones, robotic arms, and other devices has become possible. Another cutting-edge strategy that uses technology to treat neurological and musculoskeletal diseases is telerehabilitation (Bashshur and Goldberg, 2014).

According to (World Health Organization, 2017), It is essential to implement health-related rehabilitation services across all levels of healthcare, including primary, secondary, and tertiary care, and for all phases of healthcare, from acute to post-acute to long-term care. A rising number of people are now interested in creating alternative rehabilitation care models that include telemedicine, community consultations with rehabilitation professionals, and established referral networks. These approaches seek to offer patients more thorough treatment while lowering costs and enhancing results (Clark *et al.*, 2015). Additionally, there is a need to establish a registry of existing rehabilitation facilities, including information on quantity (such as the number of

institutions and beds available) and quality, as a foundation for planning and delivering rehabilitation services that meet the needs of individuals with disabilities, including those with chronic health conditions (Nugraha and Gutenbrunner, 2018).

Tele-rehabilitation has been demonstrated in several studies as an effective approach to managing a range of medical conditions, such as stroke, spinal cord injury, and traumatic brain injury (Tenforde et al., 2017). Given the increasing availability of telehealth technologies, telerehabilitation has emerged as a promising alternative to traditional in-person rehabilitation, especially in remote or underserved areas where access to healthcare services is limited. The current research findings support the use of telerehabilitation in achieving favorable functional outcomes, enhancing patient satisfaction, and reducing healthcare costs (Moffet et al., 2017). The approach has shown to be effective for patients with musculoskeletal conditions, multiple sclerosis, osteoarthritis, and recovery of motor function. Moreover, studies suggest that telerehabilitation can enhance treatment adherence, physical and mental function, and improve the overall quality of life. Although most studies have addressed outcomes of synchronous, real-time rehabilitation, there is some evidence that asynchronous telemedicine can be effective for specific patient populations, such as those following total joint replacement. However, more research is needed to investigate the feasibility, safety, and effectiveness of telerehabilitation modalities across different patient subgroups and settings, such as those who are frail or at risk of falling (Bettger and Resnik, 2020).

Despite its many advantages, telerehabilitation also has certain drawbacks, as can be seen in the list of obstacles. Assuring the caliber and dependability of telerehabilitation services is one of the major concerns (Karshmer and Garland, 2017). There are also several challenges that need to be addressed to ensure its effectiveness and safety. For example, physical medicine and rehabilitation providers and patients also face several difficulties when using telehealth. These are related to protecting privacy and security; having consistent and clear rules, standards, and payment methods; accessing the necessary devices and equipment; getting enough training and technical help; maintaining personal connection and rapport; and resolving ethical issues. To guarantee that patients receive comprehensive care, another obstacle is the requirement for interprofessional collaboration amongst healthcare professionals, such as physical therapists, occupational therapists, and speech therapists (Ortiz Gutiérrez et al., 2013). This calls for efficient

provider coordination and communication and the creation of detailed standards and guidelines for telerehabilitation services (Tenforde *et al.*, 2017b).

Bibliometric analysis is a technique for statistically examining scientific literature that may be used to pinpoint important researchers, organizations, and trends. Because bibliometric analysis offers a methodical and impartial way to evaluate the literature in our topic of interest, we decided to employ it for our study. Research gaps, partnerships, and the influence of research on the field may all be found by looking at the research outputs of various authors and institutions. Furthermore, bibliometric analysis may be employed to determine research priorities and influence future lines of investigation. Overall, we think that bibliometric analysis may serve to educate and direct research practices and policies by offering a rigorous and evidence-based method to interpreting and assessing the scientific literature. As a result, this research provides a bibliometric review of the developments in telerehabilitation research (Nicolaisen, 2010). The aim of this study is to evaluate the impact of telerehabilitation services on patient and provider satisfaction, clinical outcomes, delivery, and costs. By providing an integrated assessment methodology and benchmarking for telerehabilitation services, this study seeks to clarify the research cluster and identify the demands for such services.

B. Research question

What is the impact of telerehabilitation services on patient and provider satisfaction, clinical outcomes, delivery, and costs compared to traditional rehabilitation methods?

C. Aim of the study

1. The study aims to determine whether telerehabilitation can be an effective alternative to traditional rehabilitation methods.
2. Study evaluates impact of telerehabilitation on patient/provider satisfaction, outcomes, and costs, and develops assessment model and benchmarks for telerehabilitation services.

D. Benefits of the study

1. To Provide insights into the effectiveness of telerehabilitation services in improving patient outcomes, reducing costs, and enhancing patient/provider satisfaction.
2. Informing policymakers and healthcare providers on the feasibility of implementing telerehabilitation services as an alternative to traditional in-person therapy.

Identifying the factors that affect the success of telerehabilitation services and developing a framework for evaluating these services.