



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (RJIIF): 5.93
IJPESH 2025; 12(5): 195-211
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<https://www.kheljournal.com>
Received: 20-07-2025
Accepted: 22-08-2025

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Challenges faced by physiotherapists practicing in India and Nepal - reviewing the literature: A focus on physiotherapy and emerging role of sports physiotherapists

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DOI: <http://doi.org/10.22271/kheljournal.2025.v12.i5d.3977>

Abstract

The purpose of this review is to provide an overview of physiotherapy in India and Nepal and to conduct a comprehensive review of the literature in context of physiotherapy research in these two countries. Additionally, the current state of sports physiotherapy is presented. The summarization of the physiotherapy practice and research will help to catalog and present the focus of this profession in the two countries. A thematic analysis of relevant research papers will provide insight into the challenges and limitations of physiotherapy and physiotherapists. This will further direct various stakeholders such as the government, healthcare professionals and medical students to focus on these gaps in development. An understanding of the practice of physiotherapy will help in the identification of the aspects/areas that need to be addressed for the profession to grow. The growth of the profession will increase the recognition of physiotherapy within the medical communities of these countries. With a growing sports culture, international exposure and competitions across various sports, the need for a high-quality sport physiotherapist is felt. Thus, the review also looks into research in the sports physiotherapy field. The level and quality of research emphasize the emerging need for physiotherapists specializing in sports medicine. Based on the reviewed data, this article will aim to provide recommendations for the future evolution of the practice of physiotherapy, especially in the field of sports physiotherapy in these two developing countries.

Keywords: Injury, sports, rehabilitation, education, research, physiotherapy

Introduction

1. Background

Over the decades, physiotherapy has grown as a discipline that has contributed heavily towards the assessment, treatment and prevention of injuries that affect athletes worldwide. However, physiotherapy has not advanced quite so much in two Asian countries - India and Nepal. The research topic originated as a result of the first author's experiences as an athlete, medical student and practicing physiotherapist. As a national handball athlete (Rajasthan, India), the author observed a lack of underdeveloped physiotherapy and rehabilitation services that were athlete-centered. As an undergraduate student, she saw that evidence-based practices were not being integrated into physiotherapeutic practical settings (clinics, sport science center, etc.). As a graduate student of Tsukuba International Academy for Sport Studies 2.0 (TIAS 2.0), University of Tsukuba, Japan, the lead author is acquiring advanced practical exposure by becoming a part of a professional sports network. Her personal and professional journey instilled in her the deep-rooted desire to contribute to the field of sports physiotherapy through research collaboration. This led to several discussions with her academic/research supervisor on how the gradual development of physiotherapy as a profession could potentially be carried out in her home country. To fulfill this objective, the study aims to explore the origin, evolution and current state of the practice of physiotherapy and related- research in

these two countries. The research also aims to provide potential recommendations for the future evolution of physiotherapy, specifically sports physiotherapy. The review is divided into two sections, one dealing with the introduction and evolution of physiotherapy in India and Nepal, and second, the publications in physiotherapy, including sports-related physiotherapy interventions.

Part I

2. Introduction to physiotherapy in India and Nepal

India and physiotherapy

2.1 Introduction of physiotherapy in India

The origins of physiotherapy in India can be traced back to the early 20th century, with significant developments occurring in the post-World War II era (Indian Association of Physiotherapists (IAP); Grafton and Gordon, 2019, 2019; Sanghavi, 2017; Walia *et al.*, 2019) [12, 13, 15, 31, 40, 41] (Fig. 1).

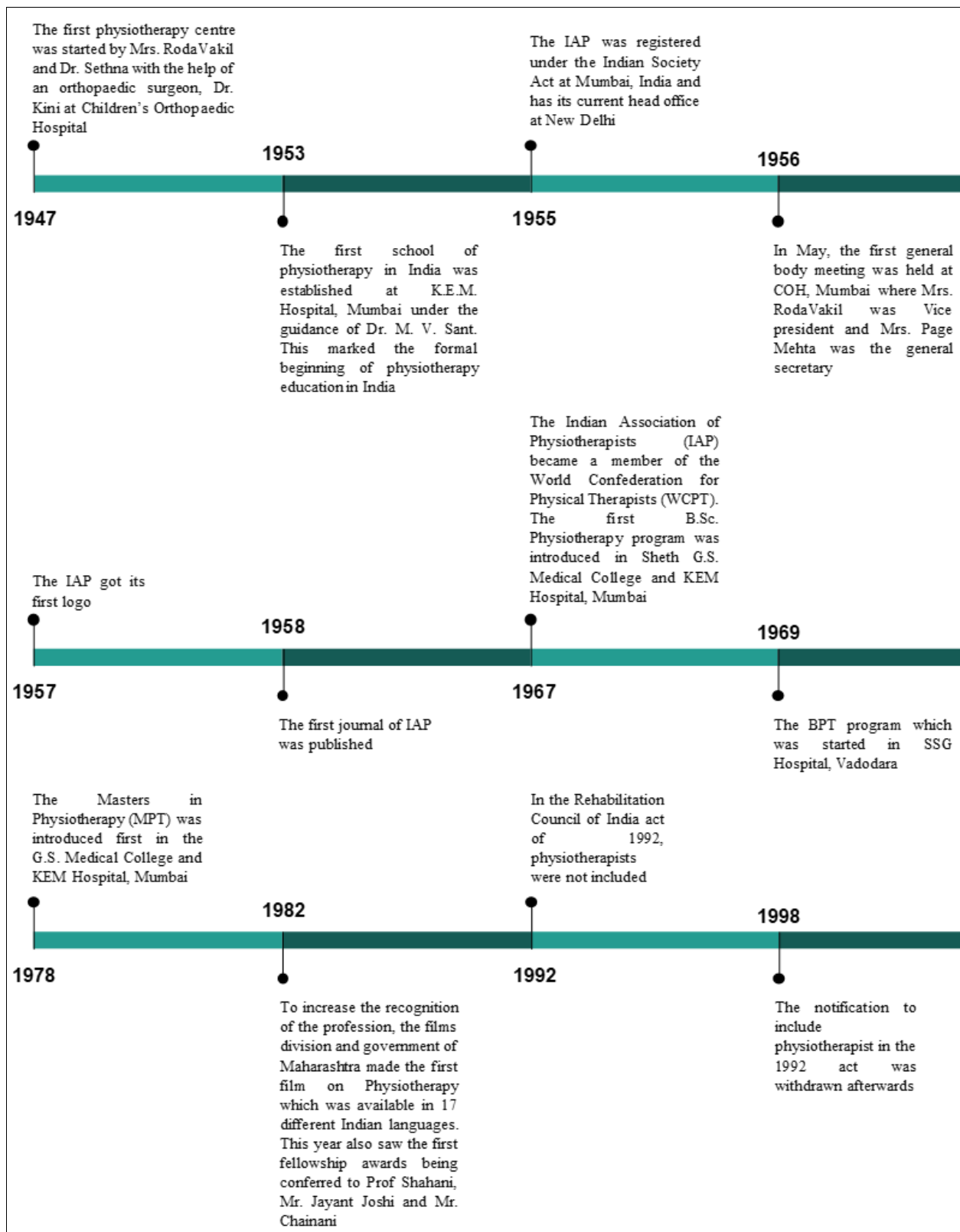


Fig 1: Important events taking place in the twentieth century that laid the foundation for the initiation of physiotherapy practice in India (Figure created by author from all references cited in section 2.1)

The growing global emphasis on rehabilitation medicine, combined with the urgent need for physical rehabilitation following the poliomyelitis epidemic of 1951-1952, accelerated the profession's growth in India. A key figure in this development was British philanthropist Mrs. Fatema Ismail, who, motivated by her daughter's treatment for poliomyelitis, established a treatment center in repurposed World War II army barracks. This initiative eventually evolved into the Children's Orthopaedic Hospital (COH) in

Mumbai. To advocate for and represent Indian physiotherapists both nationally and internationally, the IAP [15, 41], a non-profit, non-governmental organization, was founded in 1955 in Mumbai (Fig. 1).

2.2 Evolution of physiotherapy

The development of physiotherapy education in India progressed steadily over time (Fig. 2).

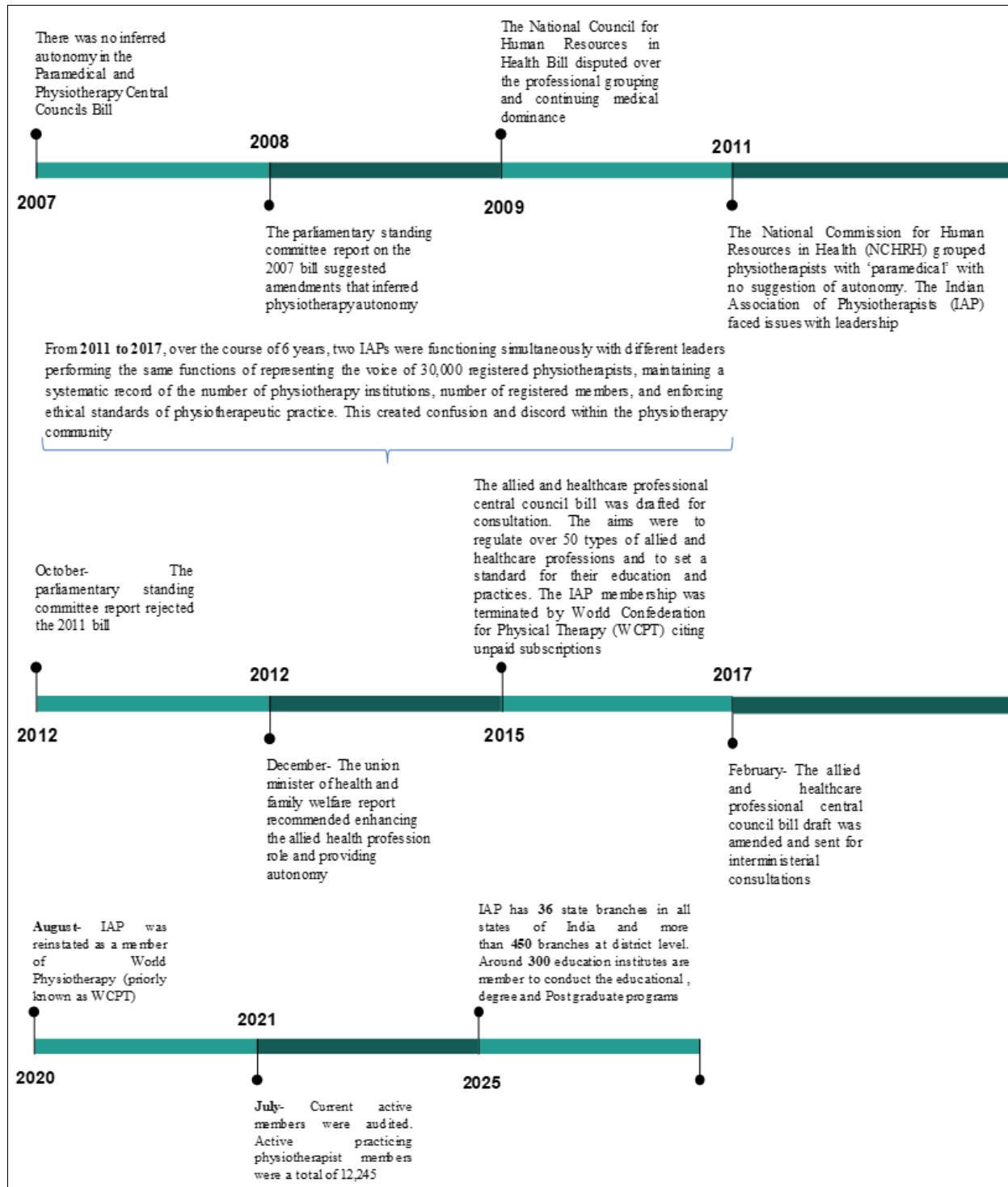


Fig 2: Gradual development of the physiotherapy profession in India through events taking place in the twenty- first century (Figure created by author from all references cited in section 2.2)

The first formal school of physiotherapy was established in 1953 at K.E.M. Hospital, Mumbai, under the leadership of Dr. M. V. Sant, marking the official inception of structured

physiotherapy training in the country. Initially offered as a diploma course, the program gradually expanded to include undergraduate and postgraduate degrees, including B.Sc.,

Bachelor of Physiotherapy (BPT), and Master of Physiotherapy (MPT). To enhance public awareness and recognition of the profession, the Films Division of India, in collaboration with the Government of Maharashtra, produced the first documentary on physiotherapy, which was released in 17 different Indian languages. That same year, the first fellowship awards in Indian physiotherapy were conferred upon Prof. Shahani, Mr. Jayant Joshi, and Mr. Chainani, in recognition of their pioneering contributions to the field (IAP; Grafton and Gordon, 2019, 2019; Sanghavi, 2017; Walia *et al.*, 2019) [12, 13, 15, 31, 40, 41].

2.3 Current state of physiotherapy?

In India, the physiotherapy profession continues to struggle with a low reward-to-effort ratio and limited social prestige. Physiotherapists often receive salaries that are not only inadequate but sometimes fall below the national average income, making it difficult to sustain a decent livelihood through the profession alone. The lack of a robust professional registration system has led to the proliferation of unqualified practitioners and unregulated home care provider agencies, which undermines the credibility of the profession. Moreover, Indian physiotherapists have limited opportunities for international collaboration in research, which restricts access to global advancements in the field and hampers professional growth. A significant portion of the current workforce comprises professionals with less than a decade of experience; those with more experience frequently seek opportunities abroad, where the profession is more established and offers better prospects for career development (Khatri and Khan, 2017) [18]. These issues have collectively made the field less attractive to aspiring medical students. Key challenges include restricted access to high-quality education and training programs, weak regulatory frameworks, and chronic resource constraints. As lifestyle-related health issues rise

among India's large and diverse population, the demand for skilled physiotherapists is increasing. However, the current infrastructure is inadequate to meet this demand. To revitalize and advance the profession, it is essential for the government to address both intrinsic and extrinsic factors particularly the lack of international research collaboration and the general public's limited awareness of physiotherapy as a vital healthcare discipline (Thiyagarajan, 2023) [38].

Nepal and physiotherapy

2.4 Introduction of physiotherapy in Nepal

The origins of physiotherapy in Nepal are relatively recent compared to its development in India. Physiotherapy services began to emerge approximately three decades ago, initially introduced at Bir Hospital by nursing staff who had received prior training in basic physiotherapeutic techniques. The profession started to take formal shape in the late 20th century, largely in response to the growing need for rehabilitation services following natural disasters and prolonged civil conflict, both of which resulted in widespread physical disabilities. A significant milestone was the establishment of the first formal physiotherapy education program in 1983 at the Institute of Medicine (IOM), Tribhuvan University, which marked the beginning of the profession's institutionalization in Nepal. To enhance the accessibility and regulation of physiotherapy services nationwide, two key regulatory bodies were subsequently established: The Nepal Health Professional Council (NHPC) in 1997 and the Nepal Physiotherapy Association (NEPTA) in 2003 [23, 42]. These organizations play a crucial role in promoting professional standards, advancing education, and supporting the overall growth of physiotherapy in the country (Acharya *et al.*, 2015; Acharya *et al.*, 2011; Bajracharya *et al.*, 2019; NHPC; NEPTA) [1, 2, 5, 23, 42] (Fig. 3).

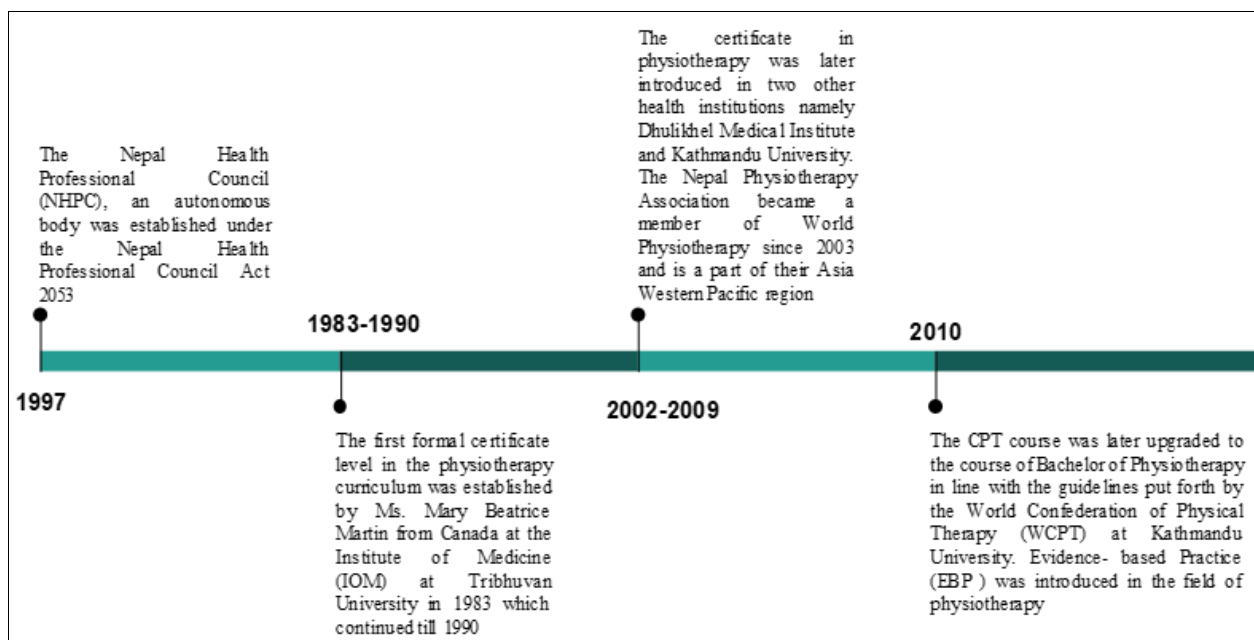


Fig 3: Events taking place in the late twentieth and twenty-first century that contributed to the initiation and growth of physiotherapy in Nepal (Figure created by author from all references cited in section 2.4)

2.5 Evolution of physiotherapy

The Certificate in Physiotherapy (CPT) course was later upgraded to a BPT program in alignment with the guidelines established by the World Confederation for Physical Therapy (WCPT), now known as World Physiotherapy. This transition

was implemented at Kathmandu University, which has since become a pioneering institution in physiotherapy education in Nepal. The introduction of the BPT program is regarded as a significant advancement in strengthening the quality of physiotherapy services and contributing to improved health

outcomes for the Nepali population. The program is a source of pride among Nepali physiotherapists and is widely recognized as a leading center for physiotherapy education in the Himalayan region. The NEPTA, which serves as the unifying body for physiotherapists in the country, has played a central role in advocating for the welfare of its members [23, 42]. Since its establishment, NEPTA has received strong support from World Physiotherapy and continues to work toward the advancement and professional recognition of physiotherapists in Nepal (Acharya *et al.*, 2015; Acharya *et al.*, 2011; Bajracharya *et al.*, 2019; NHPC; NEPTA) [1, 2, 5, 23, 42] (Fig. 3).

2.6 Current state of physiotherapy?

Nepal, a lower-middle-income country with a population of 29.2 million, faces significant disparities in access to physiotherapy services. Although 66% of the population lives in urban areas, physiotherapy remains underdeveloped, particularly in rural regions. Given its non-invasive and non-pharmaceutical nature, physiotherapy is well-suited to address the rising burden of non-communicable diseases, disabilities, injuries, and lifestyle-related conditions. However, service distribution varies widely across the country's seven provinces, with facilities often lacking disability-friendly infrastructure such as ramps, accessible entrances, and toilets, as highlighted in the Nepal Health Facility Survey 2021. There is no national registry systematically cataloguing licensed physiotherapists and their qualifications, which hampers workforce planning. Most practitioners hold only a bachelor's degree, with musculoskeletal therapy being the most common specialization. This contrasts with India which has the master's degree as the highest level of qualification. There is a marked shortage of professionals trained in cardiopulmonary and paediatric physiotherapy, and approximately 15% of employed physiotherapists are unregistered. Socioeconomic barriers further restrict access: about 15.1% of the population lives below the poverty line, with household incomes ranging from NPR 15, 994 to 60,

346. Combined with an 11.1% unemployment rate, these financial constraints make physiotherapy unaffordable for many. Geographic barriers, such as Nepal's mountainous terrain and poor road infrastructure, also hinder access in remote areas. While initiatives like the 2019 National Health Policy and USAID-supported rehabilitation projects have improved services in some regions, rural physiotherapy coverage remains inadequate (Nepal *et al.*, 2022; Shakya *et al.*, 2024, 2024) [22, 32, 33].

3. Recognition of physiotherapy as a profession in India-Nepal

Recognition

3.1 Is there a nationally recognized governing body for physiotherapists in these two countries?

The IAP serves as the apex body representing the interests of physiotherapists across India. It plays a pivotal role in promoting professional excellence, fostering career advancement, and advocating for higher standards of physiotherapy practice, all of which contribute to improved patient outcomes and overall public health. Similarly, the NEPTA functions as the principal organization for physiotherapists in Nepal [23, 42]. In addition to representing the profession, NEPTA is responsible for upholding ethical standards, ensuring accountability in clinical practice, and supporting the development of physiotherapy as a recognized and respected healthcare discipline (Acharya *et al.*, 2015; Acharya *et al.*, 2011; IAP; NHPC; NEPTA) [1, 2, 15, 23, 42].

3.2 Are the physiotherapists practicing in india-nepal registered to a globally recognized body for physiotherapists?

According to the *World Physiotherapy Annual Membership Census Profile* (2024), the NEPTA has 603 registered members, representing only 24% of the 2, 506 physiotherapists estimated to be practicing in the country [23, 42] (Fig. 4).

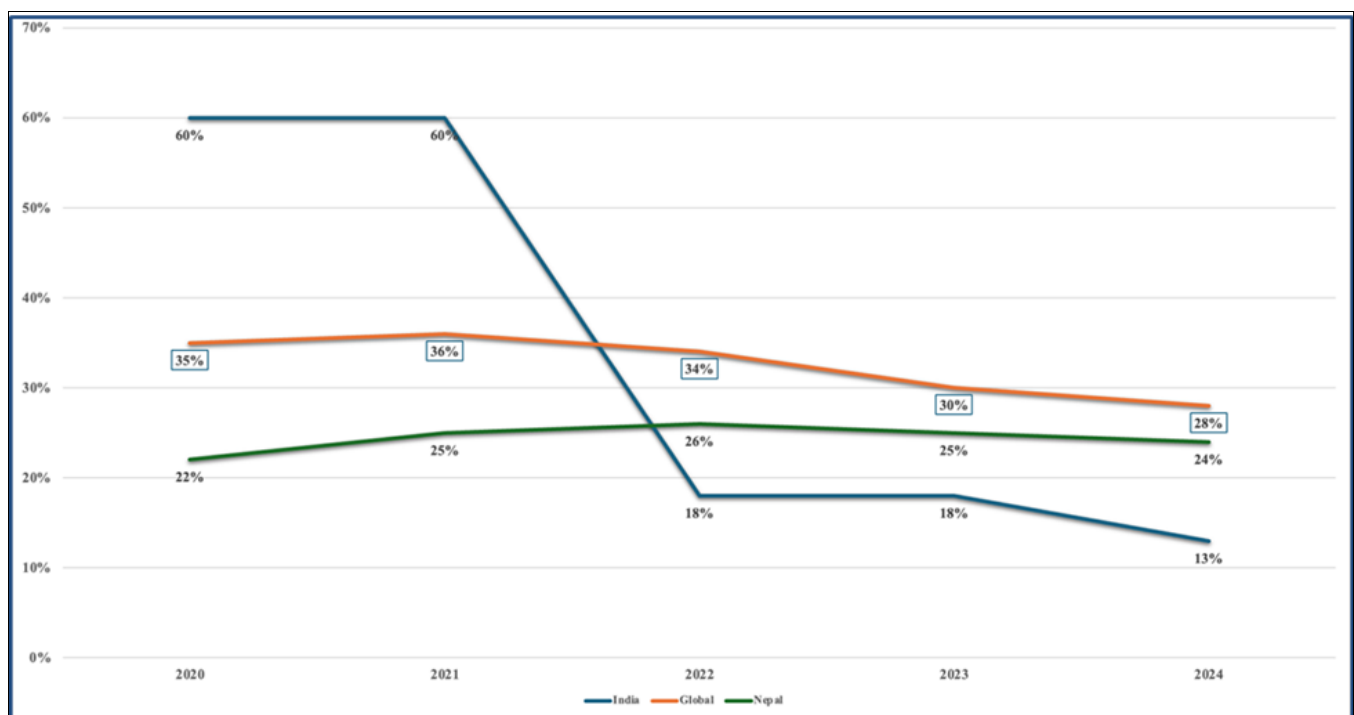


Fig 4: The percentage of physiotherapists from India and Nepal who are members of a World Physiotherapy member organization compared with the total physiotherapy workforce currently present in both countries (Figure created by author from all references cited in section 3.2)

This corresponds to approximately 0.8 physiotherapists per 10,000 people in Nepal. In contrast, although India has a significantly larger pool of physiotherapists around 52,000 the IAP has only 7,011 registered members, comprising just 13% of practitioners [15, 41]. This results in a much lower ratio of 0.36 physiotherapists per 10,000 people, nearly half that of Nepal, highlighting a gap in recognition and organization at the national level. Gender distribution is more balanced in India, where women constitute 60% of the physiotherapy workforce, compared to 43% in Nepal. In Nepal, registration with the NHPC is mandatory and requires submission of relevant documents, including academic and citizenship certificates [23]. In India, while the National Commission for Allied and Healthcare Professions Act has been passed to regulate allied health professions including physiotherapy it has yet to be fully implemented nationwide. Currently, regulation exists at the state level in regions such as Maharashtra, Gujarat, Haryana, Delhi, Tamil Nadu, and Odisha, leading to inconsistency in standards and registration across the country [15, 41] (Fig. 4).

Education

3.3 Role of education in physiotherapy as a profession

Education plays a crucial role in shaping physiotherapy into a recognized, evidence-based healthcare profession. Evidence-Based Practice (EBP), introduced globally in the 1990s, was incorporated into Nepal's physiotherapy education in 2010. In India, analysis of curricula from 15 (fifteen) Health Science Universities shows EBP content has been recently integrated from the second year onward, including courses like research methodology (84.61%), research projects (69.23%), and clinical management (57.14%) (Panhale *et al.*, 2017) [25]. EBP supports informed clinical decision-making by offering a catalogue of research-based data across various conditions and settings (Bajracharya *et al.*, 2019) [5]. EBP ensures that practitioners acquire the theoretical knowledge, clinical skills, and ethical grounding necessary to provide safe and effective care. A structured educational pathway starting with a bachelor's degree recognized by national regulatory bodies establishes standards and consistency in practice. Indian physiotherapists report confidence in patient assessment and documentation due to training in the WHO's International Classification of Functioning, Disability and Health (ICF) framework as a part of their undergraduate curriculum. Still, many believe that postgraduate qualifications are necessary for more effective treatment (Ramkrishna *et al.*, 2024) [30]. Advanced degrees such as master's and PhD programs enhance critical thinking, research capabilities, and continuous professional development, equipping practitioners to adapt to evolving healthcare challenges (Munot *et al.*, 2022) [21]. Furthermore, education fosters a strong professional identity, interdisciplinary collaboration, and enhances the credibility and autonomy of physiotherapists. Globally, organizations like World Physiotherapy emphasize the importance of accredited education in maintaining professional competence and accountability (World Physiotherapy) [43].

3.4 Are the educational degrees provided recognized by a nationally governing body for physiotherapists?

India offers 356 programs recognized by the IAP [15, 41] that

award a BPT. While the duration of the program in India was previously 4.5 years, it has recently (23 April, 2025) been extended to 5 years, aligning it with the program length in Nepal. In contrast, Nepal has significantly fewer educational opportunities in this field, with only eight institutions offering a BPT. In both countries, the minimum qualification required to practice as a physiotherapist is a nationally recognized Bachelor's degree. The respective national regulatory bodies in India and Nepal are also affiliated with World Physiotherapy, the global professional organization that promotes standards in physiotherapy education and practice [15, 41, 42, 43].

3.5 Current state of physiotherapy education

India's entry-level physiotherapy degree BPT has undergone major reforms to align with global standards set by the WHO and ILO. Under the National Commission for Allied and Healthcare Professions (NCAHP; <https://pib.gov.in/PressReleasePage.aspx?PRID=2123765>) Act, these reforms will be mandatory from 2026. Key changes include extending the program from 4.5 to 5 years, requiring NEET qualification, introducing clinical training from the second year, and emphasizing competency-based learning. These updates aim to address long-standing challenges such as communication gaps within multidisciplinary teams and insufficient supervised clinical exposure (Ramkrishna *et al.*, 2024) [30]. Despite a positive attitude among educators, issues like limited research funding, faculty shortages, and high workloads contribute to dissatisfaction and hinder academic growth (Dhrubaprasad, 2024) [9]. Rising demand in specialties has also elevated the importance of master's degrees in physiotherapy, with the 2-year program focusing on developing clinical proficiency for students aged 23-40 (Mukherjee and Sepi, 2022) [20]. The COVID-19 pandemic further underscored the value of telehealth, especially in improving rural access to care. Moving forward, collaborative research and government support for education and infrastructure are critical for advancing the profession (Priyadarshini and Jedida, 2024) [27]. In Nepal, the situation is more limited, with only eight institutions offering an entry-level physiotherapy degree. Awareness of physiotherapy's role especially in specialized settings like ICUs by doctors is low (30%), largely due to curriculum gaps, lack of interprofessional education, and under-resourced hospital departments. Government hospitals suffer from poor infrastructure and minimal investment in physiotherapy, unlike private hospitals that prioritize quality care and patient outcomes. There is also limited recognition of preoperative physiotherapy (Acharya *et al.*, 2011) [2]. Moreover, traditional treatment practices and time constraints remain barriers to EBP. Strengthening EBP through curriculum-wide integration and enhancing awareness of organizations like NEPTA are essential steps for improving physiotherapy education and practice in Nepal (Bajracharya *et al.*, 2019) [5].

Part II

4. Thematic analysis of published research

A total of 38 research papers published between 2014 and 2024 were reviewed. These studies highlight several recurring themes, which are outlined below:

Table 1: The literature reviewed in this study (Table created by author from all reference research papers)

Author(s)/Title	Aim of study	Main finding
Acharya RS, Adhikari SP, Oraibi SA, Badiya S (2015) ^[1] ; Challenges and Future Development of Physiotherapy Education in Nepal	To investigate the challenges and identify the strategies to the challenges of physiotherapy education in Nepal	A policy needs to be implemented by the two regulatory bodies of physiotherapy in Nepal namely Nepal Health Professional Council (NHPC) and Nepal Physiotherapy Association (NEPTA) that focuses on prioritizing the development of physiotherapy education across the country. This will address major issues faced while practicing physiotherapy in Nepal such as lack of awareness, job opportunities, leadership of governing bodies, retention of staff, CPD and licensing exam
Acharya RS, Khadgi B, Shakya NR, Adhikari SP, Basnet SMS, Sharma S, Webb G, Saleh OS (2011) ^[2] ; Physiotherapy awareness among clinical doctors in Nepal	To investigate the awareness of physiotherapy among clinical doctors working in various hospitals of Nepal	Awareness about the physiotherapy profession was good among the clinical doctors. For enhancing the quality of the daily life of patients, physiotherapy is an integral part of the treatment protocol. For a greater impact, awareness about specialized services of physiotherapy should be created
Alagappan, Jeyakumar and Rajalaxmi (2024) ^[3] . Clinical Sports physiotherapy practice in India- it's time to upgrade with technology and evidence based practice	This article aims to provide comprehensive suggestions and solutions to improve the standards of sports physiotherapy practice in India, emphasizing the importance of integrating technology and evidence-based approaches in clinical practice	Physiotherapists perform several duties such as handling on- field injuries, injury prevention, treatment of injuries in an outpatient setting, helping patients recover from arthroscopic surgery, travelling with sports teams or individuals for short or longer contract periods. Technological advancements such as wearable devices, motion capture systems, telehealth platforms assist in timely evaluation, diagnosis and subsequent interventions for management of injuries. Collaborations with sports science facilities helps in structuring internships that can provide exposure to sports-related injuries and their management. Several challenges to the practice of sports physiotherapy include inefficient rehabilitation workflows and protocols that provide adequate healing time without compromising on the quality of care. Funding and support is required by the government and other policy makers to ensure strengthening of interdisciplinary relationships by regular team meetings and collaborative training sessions as well as incorporation of EBP and other advanced practices in the physiotherapy curricula
Ramalingam T (2024) ^[29] ; Reforming the Physiotherapy Curriculum in India: Identifying Issues and Proposing Solutions	To identify these issues and propose solutions to improve the efficiency and relevance of the physiotherapy curriculum in India	To create a high-quality human medical resource, the educational curriculum for physiotherapy must include detailed instruction on both theory and practical knowledge of physiotherapy. Foundational sciences, clinical skills, and interdisciplinary subjects should be include in the undergraduate degree while the master's degree should focus on specialized practices and research
Anwari C, Yadav D, Goel G, Rao BC, Mohan P and Prasad R (2024) ^[4] ; Integrating physiotherapy in rural primary health care: Early lessons on the value, feasibility and emerging role of the physiotherapist from a community-oriented primary care (COPC) program in Rajasthan, India	This paper aims to 1) Share early experiences and learnings from integrating physiotherapy in rural primary health care, 2) Discuss the scope and role of physiotherapists in the primary care team, 3) List the competencies of physiotherapists in rural primary care settings, and 4) Advocate for a re-imagined role of physiotherapists as multi-skilled "primary care physiotherapists."	A comprehensive treatment can be given to the rural sections of society by integrating physiotherapists as integral members of the primary health care team. Furthermore, an increase in recognition and awareness about the exact role of physiotherapists among the public and hospital staff can improve the perception of physiotherapists
Bajracharya S, Tharu NS and Bokaliyal D (2019) ^[5] ; Knowledge, Attitude and Barrier to Evidence-Based Practice Among Physiotherapists in Selected Districts in Nepal	To identify the perceptions, attitudes and barriers towards Evidence based Practice among Nurses and Physiotherapists in Nepal	Physiotherapists across Nepal believe in the need to utilize Evidence- based Practice (EBP) during the decision-making process of a suitable treatment plan for their patients. Time was identified as the major barrier in the implementation of EBP during clinical practice. The attitude of the physiotherapists was identified as a positive and enthusiastic one towards adopting EBP
Bisht B, Gera AD (2024) ^[6] . A	The purpose of this study aimed at	The research subjects have a positive attitude towards strength and

Cross Sectional Survey-Strength Training & Conditioning Attitudes, Behaviour & Knowledge Among Physiotherapy Students & Physiotherapist	assessing the ST attitude, behavior & knowledge among physiotherapist	conditioning knowledge and implementation of the same in clinical practice. They demonstrated confidence in their ability to apply their acquired knowledge effectively clinically.
Chaudhari C and Taluja AC (2022) ^[7] ; Emerging Challenges Faced by Private Clinic Physiotherapist in New Normal Times During the Covid-19 Pandemic in Pune City.	To assess the challenges faced by private clinic physiotherapists in Pune after easing of lockdown using validated self-reporting questionnaire	During the COVID - 19 pandemic, financial loss was cited as the primary concern of physiotherapists owning clinics. Patients were too afraid to leave their homes and the physiotherapist was also facing difficulties in treating patients manually with the high risk of infection. This also made the follow- up of patients difficult. As physiotherapy is both an essential and non- essential medical service, clinics faced a huge financial loss resulting in temporary closure of several clinics during the pandemic
Deshpande AA, Shende M, Deshmukh N, and Jethwani D (2022) ^[8] ; Level of Satisfaction and the Challenges faced by the Indian Physiotherapists during Telerehabilitation amidst COVID-19 Pandemic	To analyze satisfaction level of the physiotherapists practicing telerehabilitation and to enlighten the challenges which were faced by them during the session looking forward to further manage or minimize the challenges and provide a scope for development in this emerging field of practice	Physiotherapists had an average level of satisfaction while practicing the telerehabilitation method of administering healthcare. They faced several challenges while practicing. In the rapport building with the patient, amount of information and instructions physiotherapists were able to deliver to the patient and implementation of the planned intervention in the session, the level of satisfaction cited by the subjects was average. In contrast, the level of satisfaction was poor in the assessment and evaluation of patients and availability of resources for the same during the telerehabilitation method. There was a good level of satisfaction considering the patients outcome of the treatment given
Dhrubaprasad BD (2024) ^[9] ; Challenges Faced by Physiotherapy Teachers in India and it's Solutions	To identify the challenges physiotherapy teachers face in India and explore potential solutions to improve their working conditions	All the stakeholders that are responsible for influencing the identity of physiotherapy teachers must collectively work towards supporting them with resources and finances. There is a broad spectrum of challenges faced by teachers in their workplaces such as remuneration, workload, research opportunities, curriculum and career progression. Even though efforts are being made to resolve these matters, there is a need for more effort to bring about substantial change in the working conditions of physiotherapy teachers. This can be done by advocating for their rights, education reform, research opportunities and an increased rapport with students
D'Souza AF and Rebello SR (2021) ^[10] ; Perceptions and Willingness of Physiotherapists in India to use Telerehabilitation during the COVID-19 Pandemic	This survey aims to investigate the perceptions and willingness of Indian physiotherapists to implement telerehabilitation in their clinical practice	While administering treatment via telerehabilitation, Indian physiotherapists face several challenges. However, the future of this practice seems bright. The importance of telerehabilitation was highlighted during the pandemic as a safe and affordable means of providing access to physiotherapy healthcare. Further development of the practice can help it become a more useful tool for delivering treatment
Eriksen I, Rasmussen EH, Karmacharya B, Das S, Darj E and Odland ML (2024) ^[11] ; Challenges and Possible Improvements For Healthcare Teams at Outreach Clinics In Nepal- A Qualitative Study	To explore challenges and possible improvements healthcare personnel experience when travelling to rural parts of Nepal to provide healthcare	The major challenges faced by physiotherapists in providing healthcare services to the rural population of Nepal is inadequate utilization of existing medical services and less allocation of required resources. In the rural populations, the literacy rate is very low. This creates distrust and a lack of understanding of the treatment methods being administered by the physiotherapist. This emphasizes the need to enhance the quality, effectiveness and recognition of the human medical resource- the physiotherapist among all sections of the population particularly the rural one. The regulatory bodies are responsible to take action in this regard
Grafton K and Gordon F (2019) ^[12] ; A grounded theory study of the narrative behind Indian physiotherapists global migration	The research reported here investigated the factors underpinning global migration of Indian physiotherapists	There are several pros and cons to the evolution of the physiotherapy profession in India. Although the physiotherapy community is advancing forward by adopting modern practices into teaching and clinical practice, there are several factors that are restricting the growth of the profession. These factors include no regulating authority to assure ethical standards, differing clinical and educational standards and the domination of hierarchy and doctor's prescription of rehabilitation. Most physiotherapists felt that they were in a constant dilemma of how to achieve professional

		autonomy. Most felt that their profession did not receive the respect, pay- scale and value that it deserved. This feeling has led to several physiotherapists migrating to developed countries where the profession is highly respected and valued. These countries have a leadership within the medical community that provide autonomy to the physiotherapist, gives voice to them and resolves their issues. To reduce the outflow of their talented workforce, India needs to improve workplace conditions and satisfaction by increasing the value of the profession and establishing autonomous practice
Grafton K and Gordon F (2019) ^[13] ; The motivations and aspirations of Indian physiotherapists who migrate overseas to study and work: a grounded theory study	To explore why Indian physiotherapists seek to migrate overseas for study and work	The main reason for the migration of the Indian workforce was the desire to receive international exposure for professional development by acquiring knowledge, education and clinical expertise. There is a direct relationship between pay and respect of the profession. The recognition and respect of the profession must increase for increase in effort- based pay. Respect could be achieved by constantly providing quality care. This would improve the overall quality of life that physiotherapists led. Gender and social discrimination were cultural factors that heavily impacted a physiotherapist's self-esteem
Gyawali R, Hamdani N (2021) ^[14] ; Use of Evidence Based Practice by Physical Therapist in Delhi and NCR, India: A Cross-sectional Survey	The present study aimed to assess belief and attitude about EBP, its knowledge, and skills related to obtaining and evaluating evidence and identify barriers to practice among Physical Therapists in India	The majority of physiotherapists working in Delhi and NCR believe that Evidence- Based Practice (EBP) is important during decision making of a treatment plan for a patient. If all levels in the hierarchy of the medical workforce become aware and support this fact, it could lead to the implementation of EBP while practicing physiotherapy on a daily basis
Jadhav RA, Gupta G, Nataraj M, Maiya GA (2021) ^[16] ; Knowledge, attitude and practice of physical activity promotion among physiotherapists in India during COVID 19	The present study aimed to explore PA's knowledge, attitude, and practice in India's routine physiotherapy practice	Indian physiotherapists routinely assess physical activities and promote them throughout the country. However, most of them do not know about the WHO physical activities guidelines. This calls for an increase in formal instruction of the same. Promotion of physical activities should be done to prevent disabilities that occur with physical inactivity. This includes developing and updating PA assessment and promotion strategies taking the standards of more advanced countries as a reference
Junja T, Sepi T and Mukherjee S (2021) ^[17] ; Scope of Practice and Challenges faced by Physiotherapist in Arunachal Pradesh	This study aims to explore certain/selected problems faced by physiotherapist working within the state	There are several challenges faced by physiotherapists practicing in Arunachal Pradesh. For greater career progression, there is a need to reduce social and gender discrimination towards physiotherapists. The role and function of a physiotherapist needs to be properly conveyed to both health care workers and patients seeking treatment. The workforce is young and eager to serve the population by acquiring a variety of skillsets through different therapeutic technologies. To advocate for their problems, a state physiotherapy council should be established that consists of an honest board dedicated to dealing with the problems presented by the physiotherapists
Khatri SM, Khan N (2017) ^[18] ; A Review of Physiotherapy Profession in India with Swot Analysis	To explore the current state of physiotherapy in India and provide recommendations for future development and growth	The primary reason why physiotherapy is not recognized in India is the absence of a central regulating authority. To maintain the standards of the profession there is a need for an autonomous authority that aims to protect the physiotherapy profession while improving the current standards to the ones set globally
Mukherjee S and Sepi T (2022) ^[20] ; Identification of Obstacles During Clinical Education for Indian Physical Therapist Students	To find out the barriers and suggest effective measures to solve the current challenges and issues	Physiotherapy practice must be reformed by establishing policies that focuses on tackling curricular, cultural, environmental and financial concerns. Several changes in the educational framework must be made so that it mirrors the needs of the faculty members and students. Emphasis needs to be placed on the learning process of both teacher and student by enhancing the scope of physiotherapy. This will create confidence that this career pathway is adequately rewarding according to the amount of effort being put in
Munot PN, Deshpande M and Pawar P (2022) ^[21] ; Perspective of Physiotherapist in and around	To explore the career pathways of graduates and the influence of Master's education on their careers	A master's degree in physiotherapy focuses on enhancing skills in a particular specialty and promoting the usage of evidence- based practices during clinical decision- making. It develops critical and

Pune, India with Regard to Acquiring Master's Degree-A Survey Based Study		analytical thinking through clinical specialization. 95% of the subjects believed a master's degree was beneficial while 82% thought that it had impacted their career progression positively
Nepal GM, Acharya RS, Coppieters MW, Bimali I, Poudel S, Chaudhary B, Sharma S (2022) ^[22] ; The Physiotherapy Workforce in Nepal: A National Survey	To describe the demographic characteristics, physiotherapy practice areas, settings and employment characteristics of physiotherapists in Nepal; and to document job satisfaction and the factors that influence it	Currently, only 53% of the registered physiotherapists are working in Nepal. 50% of the practicing physiotherapists reported substandard working conditions and less appreciation for the amount of effort they were putting in. This might be due to underrepresentation of physiotherapy in the rural and public sections of society. To address this issue, the main focus of policy makers should be on how to increase the recognition of the profession among the population. They should also focus on how to make services more accessible and affordable for every Nepali citizen irrespective of their geographical location or financial situation
Pandey G and Saibya S (2023) ^[24] ; Challenges of Physical Education and Sports in India: An Overview Study	To identify the current challenges in physical education and sports in developing countries	The major challenges faced in developing physical education and sports in developing countries like India are the limited number of college and universities for physical education, less use of modern technology, large class size, inadequately trained teachers, decrease in the teaching time, shortage in equipment and the negative view of the teachers and other associated guardians. The government should address these issues to further develop the sports culture throughout India
Panhale V, Bellare B, and Jiandani M (2017) ^[25] . Evidence- based practice in Physiotherapy curricula: A survey of Indian Health Science Universities	The aim of this study was to describe the inclusion of research evidence component of EBP in Indian physiotherapy programs	While physiotherapy curricula include research-based education, there remains a notable gap in clinical teaching. To effectively implement evidence-based practice (EBP), health science universities must introduce entry-level programs that prioritize EBP integration. Emphasizing EBP from the outset will enhance its practical application, ultimately leading to improved patient outcomes
Pathak A, Aabbot JH, Bajracharyan N, Gurung G, Nepal GM, Sharma S (2023) ^[26] ; Barriers and Facilitators to Implementation of Outcome Measures Among Physiotherapists in Nepal: A Mixed- Methods Study	To understand barriers and facilitators to use of standardised outcome measures (e.g. patient-reported, performance-based, clinician-reported) in clinical practice among physiotherapists in Nepal	The major barriers in the usage of standardized outcome measures (e.g. patient-reported, performance-based, clinician-reported) in clinical practice among Nepali physiotherapists were lack of time, lack of measures in local languages, difficulty in follow- up of patients, inability of patients to understand the outcome measures and lack of an availability of culturally adaptable outcome measures. This highlights the need for establishment and implementation of outcome measures that can be used across Nepal
Priyadarshini S, Jedida M (2024) ^[27] ; Current Landscape of Physiotherapy Practice in India- A Review	This review aims to provide an overview of the current scenario of physiotherapy practice in India, exploring various aspects such as education, professional challenges, scope of practice, technological advancements, and future prospects	The major challenges faced while practicing physiotherapy in India are recognition, public awareness and employment opportunities. Despite the significant progress the field has already shown over the decades, creating more awareness about physiotherapy can help in promotion of healthcare across the country. To achieve this, professional bodies like the Indian Association of Physiotherapists (IAP) are attempting to facilitate awareness about the wide range of specialties encompassed within physiotherapy
Rajan P (2017) ^[28] ; Physiotherapy in Indian Communities: a brief review.	To look into the role of physiotherapy in community rehabilitation	Community rehabilitation is gaining importance in the physiotherapy field. However, there is a lack of research regarding how to provide physiotherapy services not just for treatment of chronic diseases but also on how to prevent them from occurring.
Ramkrishna KR, Prabhakaran NS and Prashant PV (2024) ^[30] ; Challenges, Perceptions, and Experiences of Recently Graduated Physiotherapists as Novice Clinicians in Mumbai and Navi Mumbai: An Exploratory Study.	To explore the challenges, perceptions, and experiences of recently graduated Indian physiotherapy students as novice clinicians when they step out in the real world.	Physiotherapists practicing in Mumbai and Navi Mumbai felt that they could adequately interpret the evaluation of patient injuries and documentation of the same. However, they felt that a post-graduation qualification was necessary to treat patients more effectively. They also had difficulties in understanding and communicating with other members of the multi-disciplinary team. This calls for refining the undergraduate curriculum to resolve these barriers by inclusion of more supervised clinical training by experienced mentors
Sanghavi S (2017) ^[31] ; Archives of Physiotherapy in India	The study aims to explore the origin and development of physiotherapy in	The origins of physiotherapy in India can be traced back to the early 20th century. Subsequently, the gradual development of

	India	physiotherapy took place based on the global trends in medicine and the demand for rehabilitation services that was created post World-War II and a poliomyelitis epidemic in 1951-52
Shakya NR, Emen A, Webb G, Myezwa H, Karmacharya BM, Stensdotter AK (2024) ^[32] ; Barriers and Facilitators for Strengthening Physiotherapy Services in Nepal: Perspectives from Physiotherapists and Health Providers	To identify barriers and facilitators at different system levels for strengthening physiotherapy services in Nepal	The quality of the profession of physiotherapy can be improved by the combined effort of different stakeholders towards increasing awareness and accessibility of healthcare throughout Nepal. The socioecological model identifies challenges at five different levels- the individual, community, interpersonal, organizational and public policy levels
Shakya NR, Shrestha N, Webb G, Myezwa H, Karmacharya BM, Stensdotter AK (2024) ^[33] ; Physiotherapy and its Services in Nepal: Implementation and Status Reported from Facility Surveys and Official Registers	To assess implementation of physiotherapy services and to explore plans, policies and the general status of physiotherapy in Nepal	There is a varied distribution of physiotherapy services depending on the type, size and location of districts located within different provinces like different service charges and accessibility. An overview of official records report that policies and plans have resulted in the enhancement of educational systems and increase in the number of trained physiotherapists. Development of these services and how to make it more accessible to all sections of the population specifically persons with disabilities is an aspect that needs to be worked on. Proper documentation of patient data and registered physiotherapists is a requirement
Shimpi A, Writer H, Shyam A and Dabadghav R (2014) ^[34] ; Role of Physiotherapy in India- A Cross-Sectional Survey to Study the Awareness and Perspective among Referring Doctors	To look at Physicians (Doctors) Perspective as to how much importance is given to Physiotherapy, their perception of role of a Physiotherapist & need to interact with Physiotherapist for effective treatment outcome of the patient	There is an increase in the mutual faith and respect between doctors and physiotherapists. The majority refer patients for rehabilitation routinely without specifying the rehabilitation treatment to be performed. They trust that the physiotherapist has the professional ability to decide the proper course of treatment according to the case presented. Moreover, physicians tried to interact with physiotherapists more to gain a better understanding of their role in the treatment process. However, most doctors did not believe that physiotherapists should be the primary point of contact with the patient
Sidiq M, Chahal A and Sharma J (2024) ^[35] ; Insights into current trends, challenges, and future recommendations for physiotherapy clinical trials in India: Letter to editor	This article explores the current challenges faced by physiotherapy clinical trials in India and discusses potential future trends that can shape the landscape for the better	Clinical trials in physiotherapy provide data for the implementation of evidence- based practices. They help in identifying how safe a procedure is and what can be done to make the original version more effective and safer in a variety of clinical environments. This data helps physiotherapists make more informed clinical decisions when it comes to the correct treatment to be administered to the patient
Srivastava S, Sharma S, Lal M and Lal N (2022) ^[36] ; Revolution of Sports Physiotherapist: A Brief Insights About Key Roles and Significance	The review explores the expectations and role of sports physiotherapist in sports injury rehabilitation	A sports physiotherapist majorly deals with the task of designing a sport- specific rehabilitation protocol that meets the specific needs of an athlete. If a physiotherapist has prior experience of being a sports person, they can understand the game through the lens of an athlete. This deepens comprehension of the possible mechanisms of injuries. The same can also be achieved by attending training sessions of the athlete. Understanding the technical aspects of the game provides a mental catalogue of movements occurring frequently in the game. This helps in identification of risk movements. It also provides insight into the psychological and physiological demands placed on the player during competition. This knowledge will increase the trust and compliance of the athlete in the therapist's judgment and treatment methods
Thakur K, Sohkhet G, David S, Gangurde S, Borah N, Sandeep N, Jadav V, Verma P, Johnson S, Palal D (2023) ^[37] ; Challenges and Experiences Faced by Physiotherapists in Stroke Rehabilitation: A Qualitative Study	To identify the limitations faced by physiotherapists during stroke rehabilitation	For more advancements in the field of neurorehabilitation, the government should focus on designing policies in such a way that they take the socioeconomic status of the patient into consideration. This will reduce financial constraints and increase the compliance and confidence of patients with rehabilitation protocols
Thiyagarajan A (2023) ^[38] ; Suggestions and solutions to improve standard physiotherapy treatment of care in India	To explore key hindrances such as limited access to quality education, inadequate regulatory oversight, resource constraints, and shortages of	To ensure systematic delivery of physiotherapeutic services, collaboration between various healthcare departments is necessary. They need to target key issues fostering inefficiency such as improper education standards, inadequate regulatory supervision,

	skilled professionals	resource allocation and shortage of a specialized workforce. Interdisciplinary cooperation and respect should be encouraged. Research into multiple interventions and their outcomes will lead to advancements in the field
Vyas M and Sheth M (2021) ^[39] ; Changes in Clinical Practice in Physiotherapy as Repercussions of COVID-19 Pandemic	This study aimed to view how this pandemic had changed physiotherapy clinical practices in Ahmedabad	The pandemic has instilled fear in the patients to come to clinics. The cost of effective infection control (sanitization and protective equipment) has caused huge financial loss to clinics. This has shifted patient care almost entirely to tele-rehabilitation
Walia SK, Sahni RK and Singh H (2019) ^[40] ; A Survey on Major Challenges Faced by Clinical Physiotherapists working in the Hospitals of Ludhiana, Punjab (India)	This study aims to highlight various challenges among clinical physiotherapists in the hospitals which should be overcome as earliest, thereby helping in the upliftment of the profession	Physiotherapists face several difficulties while practicing in hospitals due to the lack of proper training, non-uniformity of payment, improper formation of boards or councils, less pay scale and the growth of quacks
Yeole UL, Praneetha N, Panigrahy C (2023) ^[44] ; Effect of Position Specific Physiotherapy Training on Performance of Indian Football Players: A Randomized Control Trial	This study evaluated the effect of Position-Specific Physiotherapy Training on Agility, Speed endurance, and Balance in Indian Football Players	Tailored physiotherapeutic interventions such as position specific physiotherapy training has shown a profound effect in improving the various parameters of athletes such as agility, speed, endurance and balance ability of the research subjects- the Indian football players

5. Sports physiotherapy-related research

Sports physiotherapy related research in both India and Nepal is an emerging field, reflecting increasing interest in sports and the growing demand for specialized rehabilitation services. Although comprehensive studies remain limited, existing research highlights several key focus areas. In India, research has emphasized injury prevention through fitness enhancement, early diagnosis of injuries, and timely therapeutic interventions. Tailored physiotherapy, such as position-specific training, has shown positive impacts on athletic performance (Srivastava *et al.*, 2022) ^[36]. Educational reforms have incorporated EBP into clinical training, while initiatives like journal clubs and collaborative forums aim to improve access to current research and global best practices (Alagappan *et al.*, 2024) ^[3]. Surveys reveal that physiotherapists demonstrate both expertise and a positive attitude towards strength and conditioning, signaling readiness to apply these principles in clinical settings (Yeole *et al.*, 2023) ^[44]. In Nepal, sports physiotherapy has been identified as a key area of specialization (Nepal *et al.*, 2022) ^[22]. While clinical doctors report high awareness of physiotherapy services, their understanding of sports physiotherapy remains limited, reflecting gaps in educational infrastructure (Acharya *et al.*, 2011) ^[2]. Consequently, many graduates pursue specialization abroad. Trained physiotherapists from abroad and within Nepal contribute significantly to athlete care by offering endurance, resistance, flexibility, gait, and balance training at sports science facilities (Shakya *et al.*, 2024, 2024) ^[32, 33]. Although literature on sports physiotherapy research in Nepal is limited, the field shows promising growth. Continued progress depends on expansion of education, government support, and resource allocation, ensuring the integration of sports physiotherapy into the broader healthcare system.

6. Conclusion

6.1 Summarization of the results obtained through the review

1) Underdeveloped specialized rehabilitation services such as telerehabilitation, community rehabilitation, neurorehabilitation

The COVID-19 pandemic accelerated the shift from

traditional physiotherapy to tele-rehabilitation due to confusion over guidelines and financial pressures on clinics. Treatment durations were reduced, but access to care improved, particularly for tech-savvy and remote patients. Tele-rehabilitation proved effective for consultations, follow-ups, and advanced rehabilitation during pandemic conditions (Deshpande *et al.*, 2022) ^[8]. However, challenges emerged, such as limited manual therapy, reduced assessment quality, and technical barriers like poor internet and low digital literacy (Vyas and Sheth, 2021; Chaudhari and Taluja, 2022) ^[7, 39]. To address these, experts suggest developing standardized treatment formats and government-supported guidelines for tele-rehabilitation and clinic design (Chaudhari and Taluja, 2022) ^[7]. Additionally, training physiotherapists and improving collaboration with ICT professionals is vital for secure, effective telehealth services (D'Souza and Rebello, 2021) ^[10]. Community-based rehabilitation in India remains underdeveloped. Despite government initiatives like the National Programme for Rehabilitation of Persons with Disabilities (2001-2002), outreach is limited. Physiotherapists should be more involved in preventive community care, especially for musculoskeletal disorders (Rajan, 2017) ^[28]. In neurorehabilitation, growth is hindered by a lack of infrastructure, skilled professionals, and specialized equipment. Barriers include financial constraints, low awareness, and family neglect. However, positive outcomes from adapted tele-rehabilitation routines suggest that empowering patients and caregivers with technology can improve continuity of care, reduce isolation, and support mental health. Home-based programs involving physical and cognitive exercises offer promising long-term benefits (Thakur *et al.*, 2023) ^[37] (Fig. 5).

2) Non uniformity of services especially rural rehabilitation

Outreach clinics in Nepal have struggled to provide effective physiotherapy services in rural areas due to several systemic challenges. A major barrier is the lack of awareness among rural populations about when and how to seek physiotherapy, compounded by illiteracy and a cultural preference for traditional medicine. Transportation is another significant issue, as clinics are often located far from residential areas,

limiting access for both patients and physiotherapists. Those assigned to rural postings frequently face poor working conditions, including substandard resources, long hours, unsafe travel, and inadequate food, which lowers morale and discourages long-term service in these areas. To establish a stable and committed rural physiotherapy workforce, these obstacles must be addressed. Clearly defining the physiotherapist's role within the primary care system is essential to tailor services to the unique needs of rural communities. Collaboration across departments and supportive policies can improve service quality and access. Additionally, fostering a 'primary care physiotherapist' mindset through hands-on experience and reflection can transform how physiotherapists are perceived and enhance their integration into rural healthcare (Eriksen *et al.*, 2024; Anwari *et al.*, 2024) ^[4, 11] (Fig. 5).

3) Limited awareness of physiotherapy

Limited awareness of physiotherapy in India remains a significant barrier to its integration into healthcare. While many physicians acknowledge its value, they often lack clarity about the specific roles and scope of physiotherapists. Referrals are common across most departments particularly orthopaedics and medicine but are minimal in areas like ophthalmology and psychiatry where physiotherapy is less commonly applied. In contrast, countries like Britain recognize physiotherapy as a primary healthcare service. However, in India, low literacy, uneven workforce distribution, and lack of public education hinder its development. Many doctors in Nepal remain unaware of physiotherapy's role in specialized settings; only 30% recognize its importance in ICUs (Acharya *et al.*, 2011) ^[2]. Some physicians feel they understand patients' medical conditions better, leading to reluctance in granting physiotherapists full autonomy. They prefer shared decision-making, which can enhance outcomes and mutual respect (Shimpi *et al.*, 2014) ^[34]. At multiple levels individual, community, and systemic limited understanding and negative perceptions persist. For example, 46% of children have never accessed paediatric physiotherapy services. Community-based rehabilitation and education programs are essential to shift this mindset. Organizational challenges such as poor transportation and resource limitations also restrict access. At the policy level, misinterpretations and weak implementation further compound the problem. Efforts like Nepal's 10-Year Action Plan on Disability Management (2016-2025) and global advocacy by WHO stress the need to strengthen physiotherapy services. The COVID-19 pandemic, the 2015 earthquake, and the civil conflict period have all highlighted physiotherapy's critical role in recovery, emphasizing the urgency of system-wide reform (Shakya *et al.*, 2024, 2024; Shimpi *et al.*, 2014 ^[32, 33, 34] (Fig. 5).

4) Job dissatisfaction among the physiotherapy workforce

In India, most physiotherapists have less than ten years of experience, and many graduates migrate abroad due to limited opportunities and awareness at home. Societal pressures shape their motivations men often seek better pay, while women aim for professional growth. Enhanced professional status is also a strong motivator for migration, which, combined with fewer medical students entering the field, results in a shortage of qualified professionals. With India's population facing changing lifestyles, the demand for skilled healthcare workers is rising (Khatri and Khan, 2017) ^[18]. The IAP ^[15, 41] proposed using the title "Dr." with "PT" to elevate professional respect,

but this met mixed reactions from the medical community (Grafton and Gordon, 2019, 2019) ^[12, 13]. Uniform pay scales are necessary so physiotherapists can focus on quality care. Many patients opt for cheaper, lower-quality treatments, creating a gap between the physiotherapists' efforts and financial compensation, contributing to dissatisfaction. Gender and social biases from patient's further hamper care delivery. Improved referral systems and greater collaboration between doctors and physiotherapists can enhance patient compliance and treatment outcomes. Upgrading infrastructure, including access to diagnostics and basic health facilities, is vital for effective care. Transportation barriers and low public awareness also affect treatment adherence, especially in winter. Many patients still confuse physiotherapy with massage therapy (Junja *et al.*, 2021) ^[17]. In Nepal, job dissatisfaction affects 41% of physiotherapists. Most hold only a bachelor's degree, and only one-third of the 3000 registered practitioners are actively working, due to migration and retirement. Most of Nepal's population lives in rural poverty, necessitating training in geriatric and community-based rehabilitation. Government incentives are essential to attract professionals to underserved areas and retain them in public health services (Nepal *et al.*, 2022) ^[22]. Patients often visit physiotherapists only as a last resort, adding to staff stress and burnout. Limited use of electronic health records and a high patient load reduce treatment time and increase workplace conflict. Serving rural areas also demands linguistic and cultural adaptation. Solutions include improved time management, mentorship, better incentives, and outcome-based training to grow and retain a strong physiotherapy workforce (Pathak *et al.*, 2023) ^[26] (Fig. 5).

5) Inadequate implementation of Evidence-Based Practice (EBP)

EBP is increasingly vital in physiotherapy, aiming to make healthcare more effective and affordable through the integration of scientific evidence into clinical care. EBP relies on accessing research databases, interpreting relevant literature, and applying findings to patient management. Though EBP is incorporated into undergraduate and postgraduate physiotherapy curricula, its teaching remains inconsistent and often lacks a practical, structured approach. The current focus on research methods and statistics, rather than clinical application, leaves many graduates uncertain in using EBP during real-world care (Panhale *et al.*, 2017) ^[25]. In Nepal, physiotherapists generally hold positive attitudes toward EBP, with those holding master's degrees showing twice the confidence in applying it, due to a greater emphasis on research during postgraduate training (Bajracharya *et al.*, 2019) ^[5]. However, in both India and Nepal, high patient loads often 15 or more per day leave little time for EBP application. Traditional treatment methods, limited time, lack of access to technology, and insufficient staff further hinder EBP integration. Increasing the number of clinical physiotherapists could allow more time for EBP use, improving patient outcomes and care quality (Gyawali and Hamdani, 2021) ^[14]. Clinical Trials in Physiotherapy (CTP) are essential for advancing EBP, offering structured research with clear methodologies and outcome measures. However, challenges such as low awareness, funding gaps, regulatory hurdles, poor collaboration, and recruitment issues limit their effectiveness. Educational initiatives and stakeholder support from governments, research institutions, and private sectors are critical for improving trial implementation and promoting EBP adoption (Sidiq *et al.*, 2024) ^[35] (Fig. 5).

CHALLENGES AND LIMITATIONS

<p>Underdeveloped specialized rehabilitation services such as telerehabilitation, community rehabilitation, neurorehabilitation- Limited manual therapy, reduced assessment quality, poor internet, low digital literacy and lack of collaboration with ICT professionals for secure, effective telehealth services are challenges in Telerehabilitation</p> <ul style="list-style-type: none"> ❖ Despite government initiatives like the National Programme for Rehabilitation of Persons with Disabilities (2001–2002), outreach in community-based rehabilitation in India is limited ❖ In neurorehabilitation, growth is hindered by a lack of infrastructure, skilled professionals, and specialized equipment. Barriers include financial constraints, low awareness, and family neglect <p>Non uniformity of services especially rural rehabilitation- Lack of awareness among rural populations about when and how to seek physiotherapy, compounded by illiteracy and a cultural preference for traditional medicine</p> <ul style="list-style-type: none"> ❖ Transportation limits access for both patients and physiotherapists as clinics are often located far from residential areas ❖ Physiotherapists assigned to rural postings frequently face poor working conditions, including substandard resources, long hours, unsafe travel, and inadequate food <p>Inadequate implementation of Evidence-Based Practice (EBP)- Though EBP is incorporated into undergraduate and postgraduate physiotherapy curricula, its teaching remains inconsistent and often lacks a practical, structured approach</p> <ul style="list-style-type: none"> ❖ High patient loads—often 15 or more per day—leave little time for EBP application. Traditional treatment methods, limited time, lack of access to technology, and insufficient staff further hinder EBP integration ❖ Clinical Trials in Physiotherapy (CTP) face challenges such as low awareness, funding gaps, regulatory hurdles, poor collaboration, recruitment issues and ineffective trial implementation 	<p>Limited awareness of physiotherapy- While many physicians acknowledge the value of physiotherapy, they often lack clarity about the specific roles and scope of physiotherapists. Some physicians feel they understand patients' medical conditions better, leading to reluctance in granting physiotherapists full autonomy</p> <ul style="list-style-type: none"> ❖ Referrals are common across most departments—particularly orthopaedics and medicine—but are minimal in areas like ophthalmology and psychiatry where physiotherapy is less commonly applied ❖ Many doctors in Nepal remain unaware of physiotherapy's role in specialized settings; only 30% recognize its importance in ICUs ❖ At multiple levels—individual, community, and systemic—limited understanding and negative perceptions persist. Organizational challenges such as poor transportation and resource limitations also restrict access. At the policy level, misinterpretations and weak implementation further compound the problem <p>Job dissatisfaction among the physiotherapy workforce- In India, most physiotherapists have less than ten years of experience, and many graduates migrate abroad due to limited opportunities and awareness at home. Societal pressures shape their motivations—men often seek better pay, while women aim for professional growth</p> <ul style="list-style-type: none"> ❖ Many patients opt for cheaper, lower-quality treatments, creating a gap between the physiotherapists' efforts and financial compensation, contributing to non-uniform pay scales ❖ Underdeveloped infrastructure of physiotherapy departments with necessary services such as access to diagnostics and basic health facilities ❖ Transportation barriers and low public awareness also affect treatment adherence, especially in winter. Many patients still confuse physiotherapy with massage therapy ❖ Patients often visit physiotherapists only as a last resort, adding to staff stress and burnout. Limited use of electronic health records and a high patient load reduce treatment time and increase workplace conflict
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Fig 5: Challenges and limitations in physiotherapy and of physiotherapists (Figure created by author from all references cited in section 6.1)

6.2. The Emerging Need of Physiotherapists Specializing in Sports Medicine in these Two Developing Countries (What next?)

Sports are steadily gaining popularity in developing countries such as India and Nepal, with increasing recognition of their physical and mental health benefits. Despite this, many aspiring athletes face significant challenges, primarily due to the negative perception of sports as a risky and uncertain career choice among parents, teachers, and guardians. Changing this mindset requires greater emphasis on physical education and awareness of the value of sports. Globally, the sports industry is a multibillion-dollar sector, valued between \$480-620 billion, contributing approximately 1-5% to national GDPs. To foster a sustainable and thriving sports culture in India, the government must take proactive steps.

This includes investing at least 1% of the national GDP into sports development, revitalizing indigenous (desi) sports, and establishing more sports institutes nationwide. Such initiatives would motivate emerging athletes to train regularly and pursue professional opportunities. Additionally, the government should ensure fair athlete selection processes and allocate resources for athlete development, including training facilities, coaching, and rehabilitation (Pandey and Sabiya, 2023) ^[24]. Although physiotherapists from abroad and within both countries contribute significantly to athlete care by offering endurance, resistance, flexibility, gait, and balance training at sports science facilities, there is a notable shortage of trained sports physiotherapists (Shakya *et al.*, 2024, 2024) ^[32, 33] (Fig. 6).

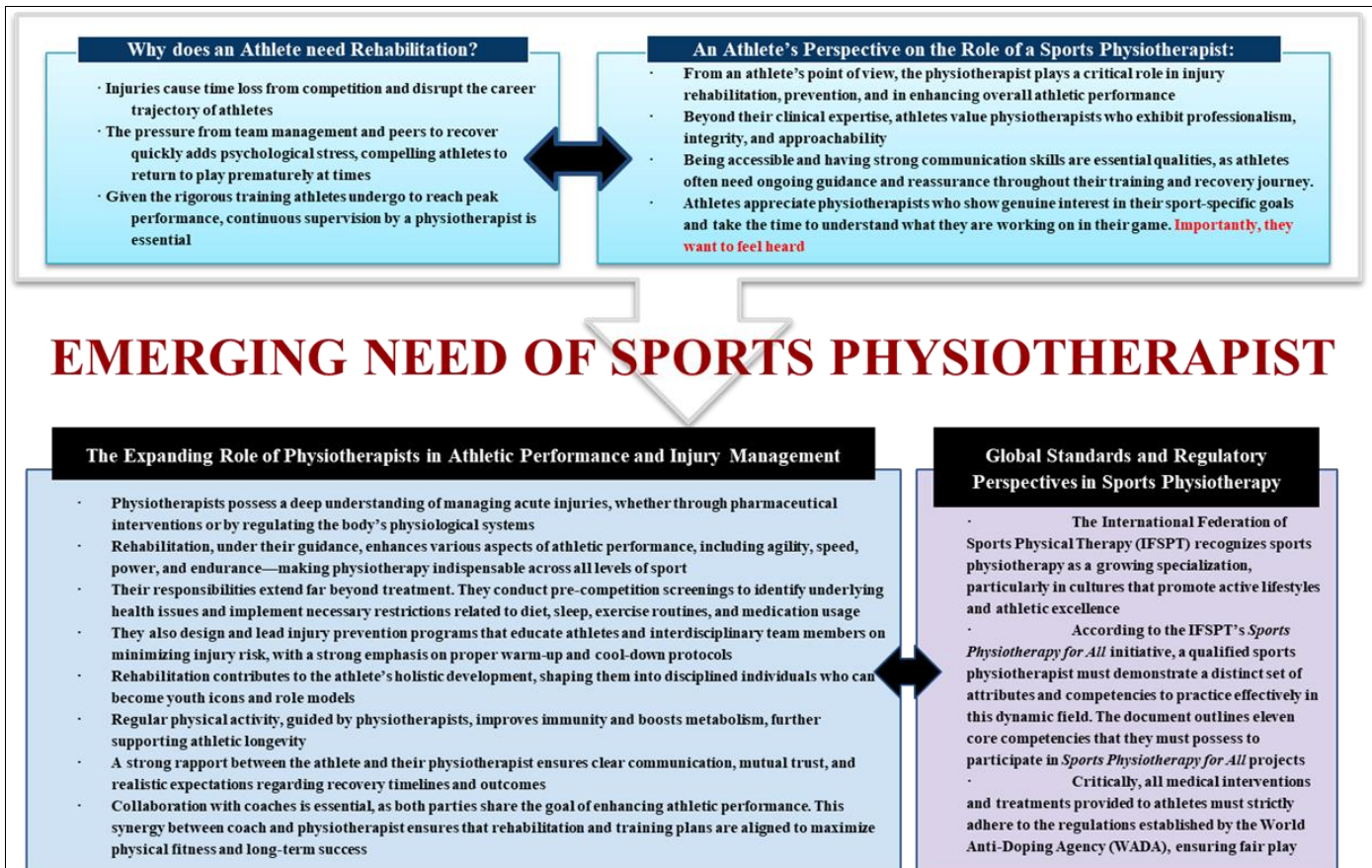


Fig 6: Emerging need of sports physiotherapist due to the athlete's growing need of rehabilitation (Figure created by author from all references cited in section 6.2. and Srivastava *et al.*, 2022 ^[36])

To address this, specialized undergraduate and postgraduate programs in sports physiotherapy should be introduced. Partnerships with professional teams and rehabilitation centres offering structured internships can provide exposure to different types of injuries and their management through treatment modalities (Alagappan *et al.*, 2024) ^[3]. These programs would help equip young physiotherapists with the

necessary skills to provide athlete-centred care, ultimately improving performance and recovery outcomes for sportspersons (Priyadarshini and Jedida, 2024) ^[27]. With proper investment in infrastructure, education, and support systems, India and Nepal can create a robust sports ecosystem that nurtures talent and supports athletic excellence (Fig. 7).

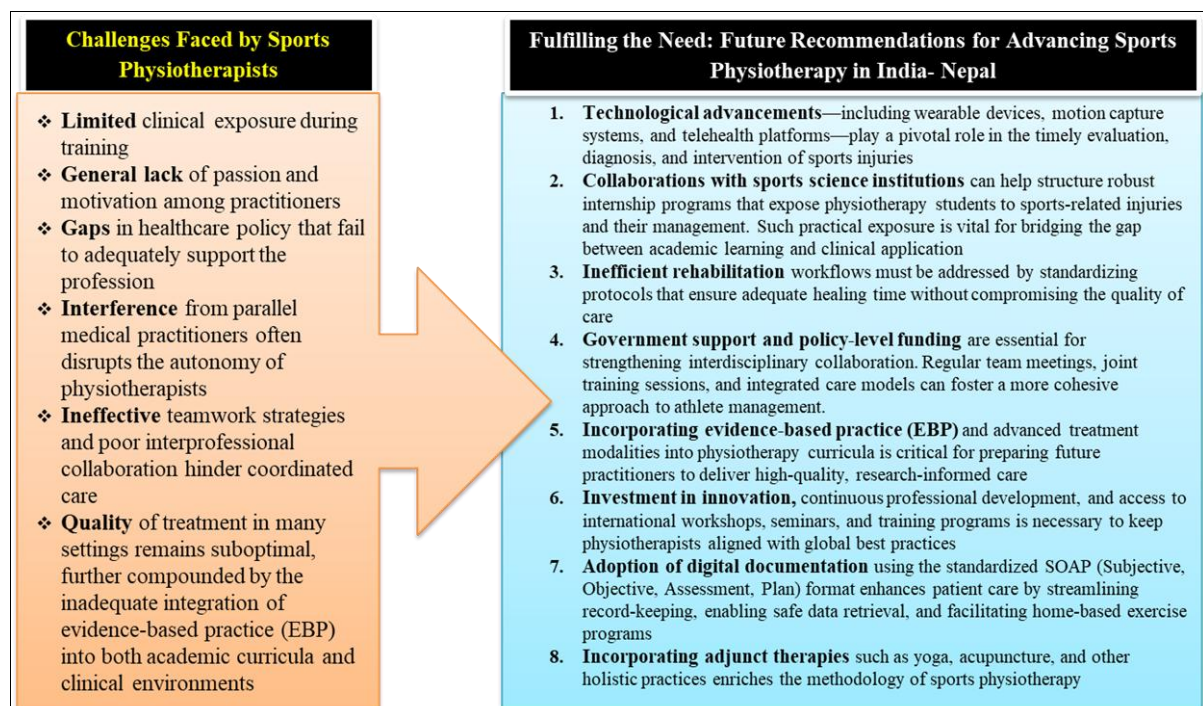


Fig 7: Fulfilling the need: Future recommendations for advancing sports physiotherapy in India- Nepal (Figure created by author from all references cited in section 6.2)

Acknowledgements

The lead author (D.A.) would like to express her sincere gratitude to her master's program (Tsukuba International Academy for Sport Studies 2.0, TIAS 2.0; a Tokyo 2020 Academic Legacy initiative, originating as TIAS, of Sport For Tomorrow Consortium/Initiative of the Japanese Government) and the accompanying KMMF (Konosuke Matsushita Memorial Foundation) fellowship funding, to address all the research questions that became the base/outline of the paper in accordance with the current aspects of the graduate school research topic. This opportunity gave her access to increase her professional network, enhanced her skill set and promoted her professional growth as a sports physiotherapist. Author's acknowledge the lead author's multiple internship experiences at Sports Authority of India - Regional Center (SAI- RC, Gandhinagar) and - Netaji Subhas Southern Centre (SAI-NSSC, Bengaluru), and the National Center for Sport Science and Research (NCSSR, Delhi). And, finally, the Judo training camp of the Inspire Institute of Sports (JSW) at Tsukuba campus held in 2025 structured the lead author's perspective about how physiotherapy is applied in sports medicine.

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