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Practical Aspects of the Interaction between Physical Therapy and Clinical Psychology

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Abstract: *This article explores the interaction between clinical psychologists and physical therapists in the rehabilitation process, using a biopsychosocial model as a foundation. It highlights key aspects of a multidisciplinary approach to rehabilitating patients with various medical conditions. The article also defines new professional roles for clinical psychologists and physical therapists, emphasising their contributions within a multidisciplinary framework. According to the International Classification of Functioning, Disability, and Health (ICF), rehabilitation specialists have distinct areas of responsibility. Clinical psychologists' work focuses on cognitive functions, as classified under ICF codes related to deficiencies in body functions and structures. Additionally, they address activity limitations, participation restrictions, general tasks, and communication-related challenges. Their role also extends to interpersonal interactions and relationships, which influence learning and the practical use of knowledge.*

Keywords: *multidisciplinary approach; biopsychosocial model; neurorehabilitation; practical psychology; physical rehabilitation.*

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1. Introduction

During martial law, the demand for comprehensive psychological support has grown significantly, especially for both civilians and military personnel. Recent advancements in multidisciplinary rehabilitation are guided by the contemporary societal challenges and wartime conditions in Ukraine. The growing incidence of trauma cases, such as blast injuries, traumatic brain injuries, concussions, and various somatic disorders, increases the risk of long-term disability. This underscores the necessity for more effective physiotherapy and rehabilitation strategies that involve collaboration among medical and non-medical specialists.

Rehabilitation after multiple traumas is resource-intensive. Prioritising recovery and social reintegration is essential for patients (Khan, Amatya, & Hoffman, 2012). At the same time, integrating clinical psychology with physical therapy plays a key role in patient interaction, quality of life improvement, and social and professional adaptation. These aspects are critical indicators of successful rehabilitation (Hayes, Hofmann, & Wilson, 2020).

Recently, physical therapy has transitioned from a biomedical to a biopsychosocial rehabilitation model. This shift requires a new approach to training specialists involved in physiotherapy. Clinical psychologists, in particular, now have a broader role in patient care. This expanded scope presents new challenges in implementation.

One example of integrating physical therapy and clinical psychology is cognitive functional therapy (CFT) (O'Sullivan et al., 2018). This flexible approach focuses on behavioural responses and aims to personalise treatment for patients with special needs. It combines methods from behavioural psychology and neurophysiology, addressing modifiable and non-modifiable health factors. This therapy enhances social interaction and integration in patients with limited mobility.

The *White Book on Physical and Rehabilitation Medicine in Europe* (European PRM Bodies Alliance, 2018) defines physical therapy as a medical discipline that improves physical and psychological functioning. However, there is limited research on the role of clinical psychologists in physical therapy and their contribution to rehabilitation. Researchers have long been interested in the relationship between physical therapy and other healthcare disciplines. Prior studies have primarily concentrated on clinical practice within four main areas: geriatrics, neurology, orthopaedics, and paediatrics (Jensen, Gwyer, & Shepard, 2000).

Research has contributed to the creation of a theoretical model for expert practice, encompassing four essential components:

1) *dynamic assessment* – a knowledge base that evolves through therapist reflection, focusing on the patient's needs;

2) *clinical reasoning* – collaboration between therapist and patient in setting rehabilitation goals;

3) *motor function assessment* – evaluation of the patient's physical abilities; and

4) *therapeutic communication* – empathy and patient care during treatment.

Additional research emphasises the influence of psychological factors on chronic pain and disability. These mental processes are closely tied to how individuals perceive pain, thereby influencing both treatment outcomes and overall quality of life. By incorporating psychological principles into movement-based therapy, rehabilitation can adopt a more holistic and effective approach (Linton & Shaw, 2011).

Greater cooperation between clinical psychology and allied disciplines is required. Recent studies emphasise the importance of thoroughly assessing new interventions and clarifying the specific role of clinical psychologists in promoting patients' well-being (Wood & Tarrier, 2010). The combination of specialised psychological methods and physical therapy plays a crucial role in the rehabilitation of children with autism spectrum disorders (Vasylieva & Drozd, 2023). When motor development programmes are integrated with psychomotor techniques, they support the psycho-emotional well-being of these children. This highlights the significance of uniting clinical psychology and physical therapy in paediatric rehabilitation.

2. A Multidisciplinary Approach to Neuropsychological and Neurorehabilitation Therapy

Physical therapy adheres to a biopsychosocial rehabilitation model, which has been developed and adopted in accordance with the International Classification of Functioning, Disability, and Health (ICF). This model identifies the primary pathology, assesses the level of functional impairment, and evaluates the potential for recovery or the prevention of further limitations. However, a person's capacity to participate in society is shaped not only by their physical state but also by environmental and external influences (Deora, 2019).

Successful rehabilitation depends on interdisciplinary collaboration. Clinical psychologists are central to this process, contributing actively to both diagnosis and treatment. By addressing the psychological dimensions of recovery, they become indispensable members of multidisciplinary teams.

Körner (2010) argues that a well-organised multidisciplinary team has the potential to develop into an interdisciplinary one. In the field of physical therapy, these teams work toward rehabilitation objectives tailored to each patient. A key element of this approach is the active involvement of both the patient and their family in shaping the therapeutic plan. Rehabilitation delivered through a team-based approach provides multiple benefits. The integration of diverse expertise leads to better outcomes than individual efforts alone. Team members can exchange knowledge, balance responsibilities, and contribute varied perspectives. Although professional roles may intersect, effective multidisciplinary teams rely on collaboration, ensuring that every member plays a meaningful part regardless of their field. To ensure effective coordination, the team meets regularly to review the patient's diagnosis, functional limitations, daily life participation, potential risks, and prognosis. These discussions lead to the formulation of both short- and long-term rehabilitation goals, which serve as the foundation for the treatment plan.

Key components of team interaction, as identified by Körner (2010), are outlined in Table 1.

Table 1. Key components of Körner's model (2010)

Component	Description
Functional differentiation	Each specialist has a clearly defined area of expertise and professional role.
Shared goals	All team members are aligned towards achieving the patient's common rehabilitation objectives.
Communication structures	Regular interprofessional meetings, thorough documentation, and the use of shared communication platforms.
Mutual interdependence	The success of each team member depends on the effective contributions of the others.
Coordination	Involves a designated coordinator (typically a physician or case manager).
Joint decision-making	The action plan is developed collaboratively, taking into account the patient's views and preferences.

Source: The authors' own conception

Multidisciplinary team members draw on their theoretical knowledge and practical expertise to define patient-specific goals, which are then integrated into a unified therapy plan in collaboration with the patient. Within an interdisciplinary framework, professionals assess the patient collectively, blending their areas of expertise rather than working in isolation. This model promotes a holistic, patient-centred approach and ensures that educational resources remain accessible to all participants (Elliott, Hocaloski, & Carlson, 2017).

Reidy et al. (2024) present an example of transdisciplinary therapy in paediatric neurorehabilitation, illustrating how a multidisciplinary approach can be successfully applied in intensive group therapy for adolescents with cerebral palsy.

The specialist team, consisting of physiotherapists and occupational therapists, worked collaboratively to design a unified therapeutic plan adapted to each child's functional goals. This cooperative approach allowed different areas of development to be addressed in a holistic manner, thereby enhancing the overall effectiveness of rehabilitation. Although psychologists were not formally involved, the group-based format nevertheless provided opportunities for informal social support. This positively influenced the participants' motivation and psycho-emotional well-being, underscoring the importance of interprofessional coordination, even within a small team. It demonstrates the critical role such coordination plays in achieving clinically meaningful outcomes in paediatric neurorehabilitation.

A key factor in defining the role of a clinical psychologist within comprehensive physical rehabilitation is their integration into a multidisciplinary team. This expands their responsibilities, including educating medical staff, providing consultations to enhance team effectiveness, and facilitating communication. Current efforts focus on developing diagnostic tools to assess the psychological areas of intergroup interactions among physical therapists. This further broadens the psychodiagnostics scope of the clinical psychologist's role in rehabilitation.

In some cases, rehabilitation teams adopt a transdisciplinary approach, which goes beyond multidisciplinary and interdisciplinary models. According to Trabacca et al. (2016), a transdisciplinary team unites specialists from various fields to achieve a shared patient-centred goal. Unlike traditional models, transdisciplinary teams integrate expertise to create new knowledge and develop a holistic approach to physical therapy. This approach is particularly beneficial in managing conditions such as cerebral palsy, where long-term rehabilitation requires a holistic, patient-centred strategy. By working toward a common goal, transdisciplinary teams provide more effective and sustainable therapeutic outcomes, especially in paediatric care.

Simultaneously, a clinical psychologist plays a crucial role from the first days of a patient's rehabilitation process. They work closely with all participants, including the patient's family and the multidisciplinary team.

The psychologist's work is focused on specific rehabilitation goals, addressing various psychological aspects. Typically, a clinical psychologist's tasks include several areas:

a) *psychodiagnostics* (neurodiagnostics, pathodiagnostics, and rehabilitation potential assessment);

b) *psychocorrection, psychotherapy and counselling*;

c) *working with the patient's family and environment*; and

d) *collaborating with the multidisciplinary team; and*

e) conducting preventive measures.

The statistics on global disability highlight the importance of incorporating clinical psychology methods into daily medical practice. Indeed, the increasing disability rates have become a global trend, impacting healthcare systems worldwide. In many regions, the quality of life for people with special needs is more influenced by psychological, social, and behavioural factors than by physical barriers. Therefore, addressing certain disabilities falls directly within the clinical psychologist's role.

Neurorehabilitation today uses therapeutic psychological support, psychocorrection, and suggestive treatment methods. The clinical psychologist's role in neurorehabilitation is especially relevant in these areas:

- Working within rehabilitation teams in stroke units and rehabilitation departments.
- Providing psychological support to patients with permanent disabilities (e.g., spinal cord injuries, cerebral palsy, traumatic brain injuries, multiple sclerosis, etc.).
- Supporting patients with amyotrophic lateral sclerosis.
- Psychocorrection for patients with neurodegenerative diseases (e.g., Parkinson's disease).
- Cognitive training for patients with Alzheimer's and other dementias.
- Psychological support for patients with genetically determined diseases.
- Assisting patients with balance disorders.

• Psychocorrection for chronic pain conditions (e.g., headaches, neuropathic pain, fibromyalgia, trigeminal neuralgia).

This article proposes a structured model of a multidisciplinary team in neurorehabilitation, outlining the specific roles of each team member (see Table 2).

Table 2. Functional responsibilities of multidisciplinary team members in neurorehabilitation

Specialist	Main tasks	Collaboration with	Communication methods
Neurologist	Diagnosis, determination of treatment programme	All team members	Medical documentation, clinical meetings
Physical therapist	Restoration of motor functions	Neurologist, occupational therapist	Rehabilitation records, daily communication
Occupational therapist	Facilitation of daily living adaptations and self-care skill development	Physical therapist, psychologist	Joint therapy sessions, intervention protocols
Speech therapist/aphasiologist	Restoration of speech and communication abilities	Psychologist, neurologist	Assessments, reports, and task coordination
Clinical psychologist	Addressing emotional well-being and motivation	Speech therapist, therapists, family	Consultations, evaluations, and intervention planning
Nurse	Providing daily care and monitoring the patient's condition	The entire multidisciplinary team	Reports, medical records, verbal handovers
Social worker	Providing social support, preparing for discharge, and liaising with family	Physician, psychologist, and administration	Meetings, social case management
Patient and family	Active involvement in rehabilitation planning and execution	Entire team	Informed consent, educational discussions

Source: The authors' own conception

An important area of focus for the clinical psychologist in neurorehabilitation is restoring language functions. This is especially important for patients who have suffered from conditions such as acute cerebrovascular accidents, cerebral palsy, traumatic brain injuries, neuro-oncological conditions, and neuroinfections.

According to Chuang et al. (2022), early rehabilitation plays a key role in neurorehabilitation. For instance, the UK's National Health and Care Programme (NHS, 2024) recommends starting rehabilitation within the first 30 days during the subacute stage. This approach maximises functional recovery and helps prevent complications in physical health (Grosios, Gahan, & Burbidge, 2010).

Kozlowska et al. (2021) highlight the effectiveness of a multidisciplinary rehabilitation programme for children and adolescents with functional neurological disorders. Psychologically oriented physiotherapy played a central role in this approach.

The team, composed of physiotherapists and psychologists, worked together to improve both the physical and mental health of the patients simultaneously. Most participants experienced a significant reduction in symptoms. More than half of the children fully regained their functioning and were able to return to school.

The study placed particular emphasis on the connection between psychological factors and motor impairments. This focus supported a more comprehensive treatment approach. However, less favourable outcomes were linked to chronic symptoms and the presence of additional mental health disorders. Therefore, integrating psychological support into physiotherapy programmes is crucial for achieving clinically meaningful results in paediatric neurorehabilitation.

3. Psychological Aspects of Functional and Social Approaches in Rehabilitation

The integration of systemic psychocorrection principles into physical therapy leads to considerable socio-economic advantages, including:

1) *increased compliance* with therapy and recommendations from patients and their relatives;

2) *improved adaptation* to domestic and professional environments after acute illnesses or chronic conditions;

3) *significant reduction* in moral and material costs for patients and their families;

4) *early identification* of psychoemotional conditions that require psychotropic medication;

5) *reduced unnecessary hospitalisations* for patients with somatic dysfunction; and

6) *achieving socio-economic benefits*, such as fewer days of temporary disability.

In the United States, Canada, and Australia, clinical psychologists hold a central role in specialised cardiac rehabilitation programmes designed for patients with ischemic heart disease or those recovering from cardiac surgery. Within the multidisciplinary team, they contribute in several key areas, including educational counselling, psychosocial rehabilitation, and support for vocational and social reintegration. Additionally, psychologists address risk factor modification and encourage adherence to a healthy lifestyle. In addition, clinical psychologists provide psychological support both before and after surgery, foster patients' stress resilience, and address conditions such as depression and anxiety. They also teach strategies for mental self-regulation and promote positive social attitudes. An important tool in psychological cardiac rehabilitation is the use of computer-based rehabilitation systems incorporating biofeedback.

Comprehensive cancer care requires strict compliance with medical prescriptions, appropriate nutrition, physical activity, positive thinking, stress management, and therapeutic exercise. The psychological well-being of both patients and their families plays a vital role in eliminating factors that may adversely affect the prognosis. It influences the patient's outlook on treatment, promoting compliance and commitment. Psychological support is crucial throughout all stages of care, from diagnosis and preoperative preparation to the postoperative phase, including chemotherapy and radiotherapy, as well as during remission and palliative care.

The American Thoracic Society (2024) and the European Respiratory Society (2024) define respiratory rehabilitation as an evidence-based, interdisciplinary, and comprehensive approach for patients with chronic respiratory diseases whose symptoms restrict daily functioning. Pulmonary rehabilitation aims to reduce symptoms, optimise functional status, increase participation, and lower healthcare costs by stabilising or reversing systemic disease manifestations. Pulmonary rehabilitation programmes involve several key components, such as patient assessment, physical exercises, education, dietary intervention, and psychosocial support. Psychological support is crucial for patients with various conditions, including bronchial asthma, chronic obstructive pulmonary disease (COPD), sarcoidosis, tuberculosis, interstitial lung diseases, and COVID-19.

Long-term psychological support is often needed for individuals recovering from COVID-19, as well as those experiencing post-COVID syndrome. These patients may show various psychological symptoms, including depressive episodes and suicidal thoughts. They may also experience emotional instability, mood swings, and poor self-control. In addition, many suffer from panic attacks and severe anxiety. Physical symptoms such as high blood pressure, dyspnea, nausea, and dizziness are also common in these patients.

Athletes face various psychological challenges, including those related to injuries, excessive physical and emotional stress, and the recovery process. They also experience pressure to achieve results and compete, frequent time zone changes, and separation from family. Other factors include managing diet and food restrictions, navigating interpersonal relationships with teammates and coaches, and coping with increased public attention. Additionally, athletes may struggle with the end of their sports career and the need to transition to new activities, particularly for those aged between 30 and 40. Specific areas of psychological correction in sports medicine include youth sports, paralympic sports, pregnancy and sports, and sports injuries.

Meanwhile, the main challenges in integrating clinical psychology with physical therapy in a multidisciplinary approach can be summarised as follows:

- A lack of interdisciplinary principles occurs during the stages of rehabilitation care, especially in the first and third stages.
- Insufficient interest in related disciplines among specialists in multidisciplinary teams.
- Unclear role distribution within the multidisciplinary team.
- Absence of the principle of equality and shared responsibility.
- Insufficient attention to the quality of life, as well as the social, domestic, and professional adaptation of the patient during the treatment process.
- Clinicians often overlook psycho-emotional and cognitive changes in patients unless these changes are pronounced.
- Physical and psychological therapeutic methods are often underestimated by clinicians, patients, and their families.

To address these issues, an optimal solution involves optimising the work of multidisciplinary teams. This includes improving access to psychological support across different profiles, exploring new points of contact within the therapeutic-diagnostic process, ensuring proper regulatory-legal frameworks, and providing economic support for psychological rehabilitation services. Key areas where physical therapy and clinical psychology intersect include the following:
a) neurorehabilitation,
b) cardiac rehabilitation,
c) oncological rehabilitation,
d) paediatrics,
e) respiratory rehabilitation, including treatment for COVID-19 and post-COVID syndrome,
f) reproductive technologies and sexual dysfunction,
g) plastic surgery,
h) maxillofacial surgery,
i) endocrinology and metabolic syndrome,
j) sports medicine,
k) occupational medicine,
l) speech therapy,
m) geriatrics, and
n) rehabilitation of individuals with special needs and war veterans (Jasnoski Gregerson, 1995).

The rapid development of innovative, high-tech rehabilitation methods creates new opportunities for integrating clinical psychology with physical and rehabilitation medicine. Engaging clinical psychologists in the design of such technologies as biofeedback, AR/VR, cognitive diagnostics, and training tools offers significant practical benefits. At each stage of these technology implementations (from development to practical use), collaboration between clinical psychologists, engineers, IT specialists, clinicians, neurosurgeons, neurophysiologists, occupational therapists, and physical therapists is necessary. Brain-machine interfaces (or neurointerfaces) are devices that enable communication between the brain and external devices (such as computers, exoskeletons, artificial sensory organs, household devices, or wheelchairs). The practical use of these interfaces is inconceivable without the involvement of clinical psychologists.

Children experiencing neurological disorders often receive a combination of psychological interventions and physical therapy. For example, hippotherapy not only improves psychological health but also aids in functional development. This combination of physical therapy and clinical psychological methods has proven effective in treating developmental disorders. The interaction between animals and children helps improve psychological, cognitive, and social domains. This promotes greater independence in movement, self-esteem, self-efficacy, and social openness. Improvements in physical, motor, and psychosocial functioning have been observed in adolescents with anxiety, depression, autism spectrum disorders, dyspraxia, cerebral palsy, and attention deficit

hyperactivity disorder (ADHD). Hippotherapy stimulates sensory-motor and cognitive development. It is considered an alternative therapeutic method due to the relationship between the patient, the horse, and the instructor (Maresca et al., 2022).

This article highlights the importance of close collaboration between clinical psychologists and physical therapists in the rehabilitation process. This process is based on the biopsychosocial model. The patient and their goals are at the centre of attention. Specialists unite around the patient, connecting not only through them but also directly with one another. All roles are seen as interdependent rather than isolated. Each specialist has a specific function, but together they form a single, cohesive unit. A multidisciplinary approach provides comprehensive support for patients with various conditions. This significantly improves the effectiveness of rehabilitation.

The ICF helps define the areas of responsibility between psychologists and physical therapists. Clinical psychologists focus on supporting cognitive functions, interpersonal interactions, and learning processes. Physical therapists, meanwhile, are responsible for restoring body functions and structures, as well as promoting patients' activity and participation in daily life. Therefore, coordinating the efforts of these specialists is crucial for achieving a balanced recovery and enhancing the patient's quality of life.

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