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Review

ICF-based multidisciplinary approach to rehabilitation of people with disabilities: perspective and current practices within the Health, Rehabilitation, Integration, and Research Center in Lebanon

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Received: 19 October 2023 / Accepted: 15 July 2024
Published online: 24 July 2024

Abstract

Background Rehabilitation of people with disabilities has aimed to improve functional status, quality of life, and social involvement. In Lebanon, rehabilitation confronts major challenges related to accessibility, affordability, and availability, in addition to the lack of applied comprehensive multidisciplinary programs.

Methods The present article elucidates the current rehabilitation status in Lebanon and describes the perspective and practice of the Health, Rehabilitation, Integration, and Research Center (HRIR), a Lebanese multidisciplinary rehabilitation center for people with disabilities.

Results The use of the ICF- based multidisciplinary approach in the rehabilitation of people with disabilities is a specific feature of the HRIR Center in Lebanon. It offers coordinated evidence-based multidisciplinary outpatient programs starting from the acute phase to the community reintegration of people with disabilities.

Conclusion Regardless of Lebanon's circumstances, the real perspective and experience of HRIR have provided highly noteworthy rehabilitation outcomes through a vast array of coordinated evidence-based practices, a highly qualified team, and thorough equipment.

Keywords People with disabilities · Rehabilitation · Multidisciplinary · Outpatient program · Lebanon

1 Introduction

As defined by the International Classification of Functioning, Disability, and Health (ICF), "disability" is identified as an umbrella term [1]. It is perceived as a continuum that includes physical, mental, or emotional impairments, activity limitations, and participation restrictions resulting from a health condition or injury [1, 2]. It considers the relationship between a person's health condition and the contextual factors in which they live, such as an unsupportive

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environment that creates barriers for the disabled person, rather than just the medical condition [1]. It is reported that people born with or acquiring a disabling disorder often experience exclusion from participation in their communities, including social activities or occupational settings [3]. Therefore, rehabilitation was proposed by the World Health Organization (WHO) as the key health first integrated into the disability care paradigm [4].

Worldwide, a considerable increase in attention and efforts toward physical rehabilitation has been reported in various nations, especially those presenting high rates of years lived with disability [5]. Rehabilitation in low- and middle-income countries is underfunded and demonstrates significant unmet needs [6]. However, in the Arab region, various social, political, and economic factors influence how society and governments react to disability [7]. Therefore, despite resource limitations, some nations, including oil-rich Gulf countries, have improved their levels of support, medical care, and literacy through civil society groups [7, 8]. Accordingly, the frequency of disabilities and government responses have been impacted by poverty, underdevelopment, and scarce resources in the Arab world [9]. Countries such as Lebanon, Iraq, Palestine, and Sudan have been affected by wars and armed conflicts, which have increased disability rates and restricted the delivery of services [10]. The present article aims to generally describe the current rehabilitation status of people with disabilities in Lebanon and specifically the rehabilitation practices and perspective within a multidisciplinary rehabilitation center, the Health, Rehabilitation, Integration, and Research Center (HRIR).

2 Methods

This paper includes a review of the literature on the ICF-based multidisciplinary approach to the rehabilitation of people with disabilities and a comprehensive summary of the available reports on the status of rehabilitation in Lebanon. It includes a description of the perspective and the current rehabilitation practices within a Lebanese multidisciplinary rehabilitation center, the Health, Rehabilitation, Integration, and Research Center (HRIR), with a thorough discussion of the available evidence and literature.

2.1 Rehabilitation of people with disabilities

The WHO defines rehabilitation as "a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions, in interaction with their environment" [11]. It aims to enhance the quality of life by targeting impairments, limitations, and restrictions of various physical, sensory, and mental dimensions, as well as taking into consideration the different contextual factors [12]. Rehabilitation is mainly a continuous process across a lifespan; it varies according to several factors, including the severity of the disability, prognosis, functional limitations, and patient perspectives [11]. In recent years, the evolution of rehabilitation sciences has mainly been linked to the increase in war-wounded people [4], the rise in the aging population, and chronic health conditions from different etiologies [13, 14]. Rehabilitation services have been considered a challenge for healthcare and social systems [14]. Therefore, the evident necessity of rehabilitation for individuals and societies has not been considered in many countries with insufficient resources provided for rehabilitative services [4]; it has been inaccurately perceived as expensive and commonly delivered as secondary and tertiary care services [4].

The emphasis of rehabilitation targeting individuals living with a chronic health condition or injury with a progressive course focused on the underlying decrease in functional capacities in addition to environmental modifications to optimize independence, functioning, and participation in all aspects of life [11, 15, 16]. The Physical Medicine and Rehabilitation (PMR) approach emphasizes successful rehabilitation through collaboration with diverse health and rehabilitation disciplines [17], highlighting the essential role of harmonious and effective teamwork among healthcare professionals to achieve rehabilitation goals [18]. Therefore, the availability of accessible and collaborative rehabilitation centers plays a fundamental role in ensuring healthy lives and promoting the well-being of all persons with health conditions who experience or are at risk of experiencing limitations of functioning [6].

2.2 ICF-based multidisciplinary approach to rehabilitation

The ICF created by the WHO identifies that the optimal rehabilitation process should consider the individual as the main focus in the process, recognize all dimensions of the person's life, and confirm consistency across sectors, as well as related

interventions [19]. The ICF has combined these aspects into a thorough system that encompasses a variety of human functioning characteristics and integrates biological, psychological, social, and environmental factors [20]. Therefore, the ICF presents a conceptual driver of rehabilitation through the use of a comprehensive understanding of health and disability in a unique framework [21].

Thus, the multidisciplinary rehabilitative approach has been designed to optimize the rehabilitative course at all levels according to the ICF and has been presumed to provide benefits to persons with disabilities or chronic conditions [22, 23]. The coordinated multidisciplinary care approach indeed involves the effective collaboration of various disciplines in addition to structured cooperation among clinicians to provide comprehensive care to a defined group of persons with a health condition who contribute together toward common health care [24, 25]. In the rehabilitation field, optimal coordinated team care is specified by the cooperation of all health and rehabilitation professionals in the evaluation based on the ICF to make rehabilitation diagnosis, goal setting, and decision-making designed toward a common rehabilitation goal and program [26]. Therefore, the level of multidisciplinarity in a rehabilitation care team varies according to the level of cooperation among clinicians [25].

2.3 Rehabilitation in Lebanon

In Lebanon, data concerning the prevalence of disabilities are rare; however, it is estimated that 10–15% of the Lebanese population has either physical, sensory, intellectual, or mental disabilities [27]. The Lebanese government has set out the legal provisions for the health care of people with disabilities, including rehabilitation services, under law 220/2000; however, this law remains unimplemented and not enforced [28]. This has contributed to the unavailability and inaccessibility of adequate health coverage for people with disabilities, as well as inequality in its geographic distribution [29]. People with disabilities in Lebanon face numerous barriers due to a systemic lack of provisions for rights, resources, and services, which include low availability of services, lack of access to specialized rehabilitation facilities and equipment, and poor quality of services provided [27].

This marginalization of Lebanese people with disabilities is attributed to the fact that the country has been facing, for several years, a harsh socioeconomic situation that is currently heightened by health, sociopolitical, and economic crises [30]. Given the lack of political and financial infrastructure for supporting people with disabilities in Lebanon, providing care for the complexity of the needs of people with disabilities is challenging [31].

According to the World Health Organization Rehabilitation Need Estimator, approximately 1.6 million people have conditions that could benefit from rehabilitation. Therefore, there is a lack of information on the rehabilitation needs and access of people with disabilities to services. A rehabilitation sectoral needs assessment conducted by Handicap International demonstrated that health services are a priority need for persons with disabilities, including rehabilitation and assistive devices, with merely 15.5% of them fulfilling their health care needs, while 25.6% can only attend part of them. Conversely, 58.9% are unable to satisfy any of their health needs, including receiving rehabilitative therapies. However, only 11% refer to primary healthcare centers for rehabilitation sessions and 3% to assistive devices [32].

In Lebanon, the provision of rehabilitation services is often performed by the private sector, and the lack of recognition of rehabilitation in the health system makes it difficult for the public to access the services. Rehabilitation services are limited, not evenly distributed throughout the country, and not systematically included in primary health centers. Only six hospitals provide inpatient rehabilitation services, and few centers offer outpatient rehabilitation care. Therefore, many independent physiotherapy clinics are affiliated with the Ministry of Public Health. Centers are mainly located in cities and scarce in rural areas. In addition, public rehabilitation services (community-based rehabilitation) are not available at the community level; most are provided by private actors or delivered by NGOs.

Furthermore, a multidisciplinary approach is infrequently adopted regardless of the availability of multiple services in the same center. However, the reason for this shortage is attributed to the lack of awareness and knowledge of the variety of rehabilitation services. Private and public organizations perceive physiotherapy as the only necessary form of rehabilitation, while a combination of multiple disciplines, such as occupational therapy, speech therapy, assistive technology adjustment, nursing, and psychosocial support, is required to achieve successful rehabilitation outcomes [33]. In conclusion, the rehabilitation of people with disabilities in Lebanon faces significant challenges. However, organizations and initiatives are working on improving the situation and promoting the rehabilitation of people with disabilities in the country.

2.4 Rehabilitation at Health, Rehabilitation, Integration, and Research Center (HRIR)

In response to the need for a new rehabilitative care pattern for people with disabilities, the HRIR center was established in different geographic areas in Lebanon in 1992. During the earliest stages, rehabilitative services were limited to physical therapy and nursing. Currently, the three tertiary rehabilitative centers are one of Lebanon's primary leading centers for people with disabilities.

The center's primary mission is to serve all people with disabilities with high-quality and evidence-based care to help them reach their maximum potential and improve their quality of life. Therefore, the hallmark of the HRIR center is the joint use of the multidisciplinary aligned with the ICF model. This feature, which most Lebanese rehabilitation centers lack, aims to develop a comprehensive and collaborative plan involving various disciplines to address individuals' specific needs and conditions.

Individuals, regardless of nationality, residing in Lebanon who manifest disabilities or medical conditions necessitating a comprehensive rehabilitation program or periodic rehabilitation services are eligible for admission to the center. Admission to the HRIR center may occur at the discretion of the individual or through referral by a healthcare provider or acute hospital. The referral process typically involves contacting the Admissions office, where the requisite administrative procedures are performed. Following this, the individual is allocated a case manager, who serves as the primary point of contact and initiates the rehabilitation process.

Each year, an average of 200–250 people receive an outpatient multidisciplinary rehabilitation program, and an average of 3000–3500 people receive individual sessions in different departments outside the rehabilitation program. The HRIR Center is staffed by 60 full-time, board-certified specialists, including a physiatrist, physicians, nurses, physical therapists, occupational therapists, speech and language therapists, clinical psychologists, social workers, a registered dietitian, and a pharmacist, all of whom possess specialized experience in rehabilitation.

2.5 ICF-based multidisciplinary approach at HRIR

Rehabilitation at the HRIR center is deemed a continuum that recognizes the cognitive and neuropsychological sequelae of the disease or injury as well as any physical impairments that may have resulted. The process is often initiated during the acute phase of treatment when a person is first hospitalized or receives immediate medical care. It proceeds throughout the recovery process to assist individuals in reintegrating into their homes and communities and being independent as much as possible.

Admission to a rehabilitation program at the HRIR center begins with a specific consultation with the physical medicine and rehabilitation doctor and the creation of a comprehensive health and rehabilitative plan based on the evaluation and assessment of the patient's skills by a team of corresponding specialists. The assessment includes a review of the patient's medical history, physical and cognitive abilities, and functional status, as well as any diagnostic tests or evaluations that may be needed to better understand the patient's needs and goals for rehabilitation. Following the completion of the evaluation, the rehabilitation committee, comprised of the rehabilitation team members and led by the physical medicine and rehabilitation doctor, develops a personalized rehabilitation plan that addresses the patient's specific needs and goals. This may include referrals to diagnostic services, treatments, management strategies, and required rehabilitation departments. This procedure highlights the application of the multidisciplinary approach and mainly aims to state general health and rehabilitative goals and a comprehensive plan of care. After asserting general rehabilitation goals and plans, collaboration among the different departments is initiated to assign specific goals. Hereby, this formal cooperation aims to discuss the variety of approaches and interventions that will be assigned specifically based on the needs, capabilities, and goals of the patient.

The particular experience of the HRIR team members within the collaborative model contributes to the maximization of rehabilitation outcomes through the application of the ICF's main objectives of reducing impairments and limitations at the level of activity and participation while taking personal and environmental factors into account. Table 1 presents the specific responsibilities of each HRIR department corresponding to the selected ICF categories. These categories were carefully selected by the HRIR team members through a deliberate process to reflect the unique operational context and focal areas of each department at the center and to closely align with the rehabilitation services provided by the HRIR center. As such, they offer a tailored representation of the department's priorities from the evaluation to the treatment, aiming to enhance efficiency and effectiveness in delivering services, as each department can focus on its specific areas of expertise while contributing to the overall rehabilitation process.

Table 1 ICF categories and involved HRIR departments

ICF Categories	HRIR Department involved
Body functions	
b110—Consciousness functions	Nursing, Physical Therapy, Rehabilitation Psychology
b126—Temperament and personality functions	Rehabilitation Psychology, Neuropsychology
b130—Energy and drive functions	Nursing, Rehabilitation Psychology
b134—Sleep functions	Psychiatry, Nursing, Rehabilitation Psychology
b140—Attention functions	Neuropsychology, Rehabilitation Psychology
b144—Memory functions	Occupational Therapy, Speech, and Language Therapy, Neuropsychology
b152—Emotional functions	Rehabilitation Psychology
b164—Higher-level cognitive functions	Occupational Therapy, Speech, and Language Therapy, Neuropsychology,
b167—Mental functions of language	Speech and Language Therapy
b210—Seeing functions	Sensory rehabilitation team
b230—Hearing functions	Sensory rehabilitation team
b280—Sensation of pain	Nursing, Physical Therapy
b310—Voice functions	Speech and Language Therapy
b320—Articulation functions	Speech and Language Therapy
b410-b429—Functions of the cardiovascular system	Nursing, Family medicine
b430-b439—Functions of the hematological and immunological systems	Nursing, Family medicine
b440-b449—Functions of the respiratory system	Nursing, Family medicine, Physical Therapy
b455—Exercise tolerance functions	Physical Therapy
b510-b539—Functions related to the digestive system	Nursing, Family medicine
b510—Ingestion functions	Nursing, Speech and Language Therapy
b525—Defecation functions	Nursing
b540-b559—Functions related to metabolism and endocrine system	Nursing, Family medicine
b620—Urination functions	Nursing
b640—Sexual functions	Nursing
b710—Mobility of joint functions	Physical Therapy
b730—Muscle power functions	Physical Therapy
b740—Muscle endurance functions	Physical Therapy
b760—Control of voluntary movement functions	Physical Therapy
b770—Gait pattern functions	Physical Therapy
b810—Protective functions of the skin	Nursing, Hyperbaric Oxygen Therapy Department
b1671—Expression of language	Speech and Language Therapy
Activities and participation	
d175—Solving problems	Neuropsychology, Rehabilitation Psychology, Occupational Therapy
d230—Carrying out daily routine	Occupational Therapy
d240—Handling stress and other psychological demands	Rehabilitation Psychology
d310-d329—Communicating-receiving	Rehabilitation Psychology
d410—Changing basic body position	Occupational Therapy
d415—Maintaining a body position	Occupational Therapy
d420—Transferring oneself	Occupational Therapy
d440—Fine hand use	Occupational Therapy
d445—Hand and arm use	Occupational Therapy
d450—Walking	Physical Therapy
d455—Moving around	Physical Therapy
d465—Moving around using equipment	Physical Therapy, Occupational Therapy
d470—Using transportation	Transportation Department, Occupational Therapy

Table 1 (continued)

ICF Categories	HRIR Department involved
d475—Driving	Transportation Department, Occupational Therapy
d510—Washing oneself	Occupational Therapy
d520—Caring for body parts	Occupational Therapy
d530—Toileting	Occupational Therapy
d540—Dressing	Occupational Therapy
d550—Eating	Occupational Therapy
d560—Drinking	Occupational Therapy
d570—Looking after one's health	Nursing, Family Medicine
d640—Doing housework	Occupational Therapy
d660—Assisting others	Rehabilitation Psychology, Social Work
d710—Basic interpersonal interactions	Rehabilitation Psychology, Social Work
d760—Family relationships	Rehabilitation Psychology, Social Work
d770—Intimate relationships	Rehabilitation Psychology, Social Work
d845—Acquiring, keeping, and terminating a job	Vocational Rehabilitation and Employment Team, Social Work
d850—Remunerative employment	Social Work, Vocational Rehabilitation, and Employment Team
d920—Recreation and leisure	Recreational Activities and Hydrotherapy Services
Environmental factors	
e115—Products and technology for personal use in daily living	Occupational Therapy, Assistive technology (AT)—Home modification team
e120—Products and technology for personal indoor and outdoor mobility and transportation	Occupational Therapy, Assistive technology, Home modification team
e310—Immediate family	Social Work
e415—Individual attitudes of extended family members	Social Work
e460—Societal attitudes	Rehabilitation Psychology, Social Work

2.6 The outpatient rehabilitation program at HRIR

The rehabilitation process of people with disabilities at the HRIR center adopts an outpatient rehabilitation program without inpatient service availability. It involves providing all health and rehabilitation services for the patient at the center following his discharge from the hospital to home. Outpatient rehabilitation enables patients to receive therapy at the center while continuing their daily routines and being in the comfortable atmosphere of their own homes. This tactic derived from an essential value of the HRIR mission, which is adopting the patient and family-centered approach [34], involving the patients and their families in the care plan. The purpose is to help the patients and their families adjust to the new reality of the disability and ensure the delivery of high-quality care comparable to that provided in an inpatient program.

All rehabilitation services at the HRIR center aim to support patients in adapting to their disabilities both at home and during their daily transportation to the rehabilitation center. This includes ensuring the involvement of the patient and their family in the planning of rehabilitation care and establishing goals that prioritize the patient's preferences and home-related needs. Following up on the patient and family's feedback regarding the care received and ensuring reliable and safe transportation services to facilitate access to the rehabilitation facility are also priorities. The main practices of the health and rehabilitation departments at the HRIR center are summarized in Table 2.

Based on the perspective and experience of the HRIR center, transferring persons with disabilities from the hospital to their homes and incorporating them in outpatient rehabilitation programs can be a helpful strategy for people recovering from illness or injury. This strategy can help adjust and cope with the new condition and foster a continuous recovery process. It can also be a positive factor in the patient's overall recovery and well-being, offering a greater sense of independence and autonomy as well as preventing the hypothetical resulting stress of the patients and family after discharge from an inpatient facility.

These experience assumptions are supported by a qualitative exploratory study highlighting the need to optimize rehabilitation services to increase service providers' capabilities and provide transportation for people with

Table 2 Main role and practices of HRIR departments

HRIR department	Main role and practices
Physical medicine and rehabilitation	■ Determine general and specific medical and rehabilitation goals for the patient care ■ Lead the rehabilitation process by providing comprehensive evaluation aiming at the perfection of all quality-of-life dimensions ■ Coordinate and collaborate with the team members on the medical and rehabilitation procedures
Family medicine	■ Diagnose and treat persons with disabilities and their family members of all ages ■ Provide preventive care through routine checkups, screening tests, and immunization ■ Manage chronic diseases ■ Coordinate with the team on patient education to maintain healthy lifestyles as a first step toward a healthier society for people with disabilities
Rehabilitation nursing	■ Evaluate and manage the general medical status of the patient through a detailed periodic review of systems ■ Support patients with basic and complex needs including prevention, education, and rehabilitation ■ Provide interventions targeting training and promoting active self-care and self-management ■ Involve in all aspects of the multidimensional rehabilitation procedures ■ Participate in identifying therapeutic and rehabilitative pathways ■ Participate in the development of health and preventive education programs
Pharmacy	■ Supervise the drug distribution process ■ Monitor and manage patient drug therapy to ensure the safe use of medicine and avoid interactions, abuse, and recurrences ■ Advise and inform patients about medication dosing methods, side effects, and signs of drug allergy ■ Ensure accurate patient drug records ■ Provide information about medicines (generic name, indication, alternatives, and remedies) for the team members
Clinics: urology/neurology/orthopedics	■ Evaluate and follow-up persons with disabilities ■ Determine and carry out the necessary medical diagnosis and interventions (EEG, EMG, BOTOX Injection, Echography, Urodynamic, cystoscopy, Bladder Botox) ■ Determine the treatment plan in coordination with the rehabilitation team
Psychiatry	■ Evaluate and diagnose mental health disorders ■ Assess the mental and physical aspects of mental health and emotional disorders ■ Prescribe and manage medications for mental health disorders ■ Control and manage drug addiction ■ Refer patients to the psychology department
Social work	■ Support patients through the rehabilitation program by coordinating with their families, the rehabilitation team, and the community ■ Provide resources to help persons with disabilities reintegrate into their work and their community, including information on transportation, funding for medical devices, and changes to the home environment ■ Hold individual counseling sessions for patients, couples, and families ■ Direct interventions by visiting the patient's homes for evaluation and support ■ Communicate with community agencies and service providers ■ Advocate at individual and systemic levels when gaps in service are identified
Assistive devices	■ Deliver the required type of assistive devices for persons with disabilities such as wheelchairs, walking aids, cushions, and splints ■ Provide different medical supplies such as Foley catheters, urine bags, sterile gauze, and gloves
Transportation	■ Transport patients from home to the rehabilitation center, to the hospital, to the medical clinics for any medical or rehabilitative purpose, using adapted vehicles equipped with a telescopic or folding ramp, lifting platform, or tilting lowered floor to make it possible to get in and out in a wheelchair
Hyperbaric Oxygen Therapy Department (HbO_2)	Provides a noninvasive procedure used as a complementary therapy for crush injuries, compartment syndrome, wound care, and others

Table 2 (continued)

HRIR department	Main role and practices
Rehabilitation psychology	■ Evaluate and treat mental health and emotional disorders of persons with disabilities ■ Assess and treat behavioral disorders resulting from physical or mental disabilities ■ Provide counseling for the patient's family and couples ■ Deliver group therapy for people with similar health conditions ■ Design behavioral and interaction management plans for persons with disabilities ■ Coordinate with the rehabilitation team about the patient's mental health and emotional issues ■ Coordinate with the family physician and the psychiatrist to provide a better medical and drug therapy plan
Physical therapy	■ Assess and treat impairments, activity limitations, and participation restrictions in people with movement and functional deficits due to various conditions such as injuries, diseases, disorders, pain, and aging [44] ■ Help patients by reducing pain, increasing mobility and movement, and maximizing quality of life through promotion, prevention, treatment/intervention, and rehabilitation ■ Measures the outcomes of any physical therapy intervention periodically ■ Educate the patient and family on self-management strategies using shared decision-making, advice, and exercises ■ Collaborate with the rehabilitation team
Recreational activities services	■ Assess the concerns on leisure and community activities of the patients ■ Design and perform recreational and leisure plans, in addition to social integration activities ■ Implement group aquatic therapy activities in collaboration with the physical therapy department
Speech and language therapy	■ Evaluate and treat developmental and acquired language disorders ■ Assess and manage swallowing disorders ■ Evaluate and treat motor speech disorders and fluency disorders ■ Evaluate and treat learning disabilities ■ Assess and treat communication disorders ■ Assess and treat cognitive disorders ■ Collaborate with team members to facilitate appropriate communication with patients ■ Collaborate with family members for effective generalization of therapeutic goals
Occupational therapy	■ Support persons with disabilities to overcome the effects of decreased functioning caused by illness, aging, and/or accident and thus to gain; and promote their participation in daily activities such as self-care, work, or leisure as well as applying a "whole-person approach" [45, 46] ■ Enhance the physical, psychological, cognitive, and social performance of the person ■ Develop his ability to perform purposeful tasks related to an occupation ■ Educate the person or their family concerning different conditions, options for improvement, ways of developing function, or even preventing difficulties ■ Modify tasks or the person's physical environment to permit better occupational performance ■ Optimize the person's participation in integrated occupations including vocational rehabilitation
Assistive technology (AT)—Home modification Team	■ Premise the needs of the person for AT ■ Decide based on a person-centered approach the most convenient solution for the person ■ Procure training for the AT use ■ Provide home visits to plan home modification ■ Follow-up to make sure of the best implementation of the AT ■ Provide personal creation of AT based on the person's assessment ■ Provide education for both patients and families concerning the appropriate use of assistive technology

Table 2 (continued)

HRIR department	Main role and practices
Neuropsychology	■ Apply standardized neuropsychological assessments to evaluate brain functions, including memory, attention, learning abilities, and cognitive skills ■ Provide cognitive compensatory strategies and rehabilitation, along with recommendations for caregivers ■ Predict prognosis by associating the assessment findings with neuroanatomical brain lesions ■ Make sure that the team members are alert to the different behavioral and cognitive impairments exhibited by the patient ■ Collaborate with team members to ensure the application of required cognitive compensatory strategies
Vocational rehabilitation and employment team	■ Provide work assessment and evaluation ■ Offer training in work-related skills and improvement of general skills ■ Provide counseling and employment searches with potential or existing employers ■ Integrate necessary modifications in the work environment
Sensory rehabilitation team	■ Evaluate the needs of the patients with sensory disabilities ■ Provide training related to living skills, mobility, and orientation ■ Perform environmental modifications ■ Apply training exercises related to oculomotor, binocular, and visual perception, visual strategies, auditory discrimination, and attention
Prosthetics and orthotics	■ Design and manufacture upper and lower limb prostheses for patients with amputation ■ Design and manufacture different orthotic devices ■ Collaborate with the rehabilitation team on the needs of the patient ■ Educate patients on prosthesis and orthosis proper use and maintenance
Research and development	■ Conduct research studies that contribute to evaluating the current status of Lebanese people with disabilities and advancing knowledge of rehabilitative care of people with disabilities ■ Provide effective continuing education programs for rehabilitation professionals through scientific meetings seminars, and educational professional workshops ■ Provide patient education program through small group meetings ■ Offer important professional education for students in different rehabilitation disciplines such as nursing, physical therapy, occupational therapy, speech and language pathology, and clinical psychology ■ Collaborate with different national and international universities and research centers to implement joint research projects ■ Update health and rehabilitation protocols used in the center according to recent evidence-based practices and guidelines

disabilities [35]. In addition, a recent study emphasizes the consideration of residence in a rehabilitation facility as an environmental factor that mainly increases dependency on caregivers and decreases quality of life [36]. In addition, other findings indicate that the benefits gained from an inpatient program may decline over time, particularly when returning to the same environment as before the intervention [37]. Furthermore, one study demonstrated that an outpatient setting appears to be more effective in improving patients' quality of life than an inpatient setting [38].

In summary, according to the rehabilitation committee reports at the HRIR center, 80–85% of patients who completed their rehabilitation reached successful community reintegration levels. However, 10–15% of critical cases may require an inpatient rehabilitation program. Discharging a patient to their home and participating in outpatient rehabilitation is more beneficial than the inpatient program, as it is a convenient and empowering option for many individuals in the recovery process.

3 Discussion

Rehabilitation plays a critical role in the lives of persons with disabilities, aiming to restore their functional capacities, improve their quality of life, and support their social integration [14]. However, as demonstrated in Lebanon, rehabilitation encounters various problems that extend beyond the limits of the therapeutic setting. The purpose

of this perspective article was to address the complexities facing the rehabilitation of people with disabilities in Lebanon and the current practices and perspectives used at a Lebanese multidisciplinary rehabilitation center, the Health, Rehabilitation, Integration, and Research Center (HRIR).

The rehabilitation of people with disabilities in Lebanon presents numerous challenges, including issues related to access to services, affordability hindered by economic and political instabilities, and the unavailability of comprehensive multidisciplinary rehabilitation programs [33]. These conclusions have been drawn from national reports; therefore, it is important to note that evidence derived from national research studies on rehabilitation services policies and programs remains scarce in Lebanon and many other countries [6]. The present descriptive article serves as a summary of a literature review of available reports regarding the current rehabilitation of people with disabilities in practice in Lebanon, with a thorough description of the scientific basis used to guide the current perspective and approach within the HRIR center.

Building upon the ICF-based multidisciplinary approach, the HRIR's success in the field of rehabilitation is attributable to its robust assurance of using the ICF core sets in the assessment, communication, and rehabilitation goal setting by the multidisciplinary team. Therefore, it is worth noting that the adoption of the ICF in clinical practice is considered challenging in the literature [40, 41]. Only one recent study in Japan has studied the effectiveness of the use of the ICF and the direct relationship between the multidisciplinary rehabilitation approach with serial assessment and discussion by the ICF rehabilitation set and good functional recovery of patients in a convalescent rehabilitation ward [39].The comprehensive division of the departments involved for each ICF category developed by the HRIR center can be considered a specific feature that should be presented and discussed in rehabilitation clinical practice and can be a model to be used in similar rehabilitation centers globally. The HRIR center's approach can serve as an exemplary model for rehabilitation centers worldwide. By categorizing departments according to specific ICF categories, the HRIR center has created a system that enhances the coordination and delivery of patient care. This model can be particularly beneficial for rehabilitation centers in diverse socio-economic contexts, enabling them to optimize their resources and improve patient outcomes by implementing a similarly structured, multidisciplinary approach.

In addition, the application of this approach in Lebanon helps to recognize that rehabilitation extends beyond physical therapy and actively involves professionals from diverse disciplines to comprehensively address the multidimensional nature of disability. Thus, a systematic evaluation of the application of this approach in Lebanon is needed, and building education and awareness campaigns about the idea of rehabilitation in the Lebanese population is recommended to promote this concept.

As a result of the HRIR center's perspective, embracing a person- and family-centered approach that evolved well-designed care tailored to the person's unique needs, adopting a comprehensive program through multidisciplinary teamwork with specific clinical experience in the field of rehabilitation for more than 12 years with ongoing continuing medical education, and using designed rehabilitation protocols based on available research studies comply with the evidence-based practice components, which are considered an integral characteristic of rehabilitation [42, 43]. The combination of these fundamental concepts into rehabilitation practice could develop meaningful outcomes for individuals with disabilities and also pave the way for numerous research opportunities. Our findings provide a valuable reference for international healthcare providers looking to enhance their rehabilitation services by adopting a structured, ICF-based departmental framework.

These preliminary descriptive findings might be insufficient since it follow a descriptive prerequisite without research design and method. Therefore, this paper can serve as a basis for future directions for research in Lebanon.

3.1 Future directions for research

In the context of the healthcare system in Lebanon, there are several remarkable directions for future research in the field of rehabilitation, particularly when considering the use of the ICF framework and embracing a multidisciplinary approach. These research directions are crucial for enhancing the quality of rehabilitation services and ensuring equitable access for people with disabilities.

An investigation into the use of multidisciplinary programs in rehabilitation in Lebanon is valuable to inform policies and regulations targeted at improving access to rehabilitation for people with disabilities. Collaborative research efforts that encompass various health and rehabilitative disciplines could yield practical insights aligned with the principles of the ICF framework. Additionally, such research efforts would serve to raise awareness and knowledge among Lebanese

persons with disabilities and healthcare and rehabilitation professionals. Future research must focus on assessing the long-term outcomes and cost-effectiveness of these multidisciplinary programs.

A comprehensive exploration of the barriers and challenges faced by individuals with disabilities who require rehabilitation services in Lebanon can be enriched by applying the ICF model. This perspective offers a holistic understanding of the complex dynamics that influence both outcomes and access to a range of rehabilitation services. Identifying and addressing these challenges will be instrumental in improving the rehabilitation landscape in Lebanon. Research projects aimed at understanding the healthcare needs and rehabilitation perceptions of Lebanese people with disabilities are strongly recommended. Such studies can provide insight into the particular requirements and expectations of this population, ultimately contributing to more patient-centered and effective healthcare services.

4 Conclusion

The HRIR rehabilitation center in Lebanon is an outstanding example of how a multidisciplinary approach can be relied on by the ICF framework to lead to successful rehabilitation outcomes for people with disabilities. The center's comprehensive evidence-based outpatient program, which integrates a variety of medical, therapeutic, rehabilitative, and support services, has proven to be an effective means of helping people recover from a wide range of physical, emotional, and cognitive disorders. The use of the ICF approach and evaluation allows a holistic understanding of the patient's functioning and enables the development of effective individualized treatment plans. The dedication and expertise of the team at HRIR, combined with the state-of-the-art facilities and equipment, have resulted in a high level of patient satisfaction and successful outcomes. The HRIR center may serve as a model for other rehabilitation centers to follow.

Acknowledgements The authors are thankful to all the HRIR team members.

Author contributions The authors confirm their contribution to the paper as follows: NS and IN developed the project idea. NS and SF designed the study plan. HZ, MS, NS, and RM performed the literature review. FH, RM, NS, SF, MS, and HZ collected the data from the center and drafted the manuscript. MS, HZ, SF, and IN reviewed and edited the paper. NS and IN critically reviewed and edited the final draft. All the authors have read and agreed on the final version.

Funding No funds were granted for this project.

Availability of data and materials Not applicable.

Declarations

Ethics approval and consent to participate Not applicable.

Consent for publication Not applicable.

Competing interests The authors declare that they have no competing interests

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