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Physiotherapy for Elderly Patients: Challenges and Solutions

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Abstract
The aging population is increasing, leading to a heightened demand for healthcare services tailored to their specific requirements. Physiotherapists have conventionally assisted elderly individuals following an injury (e.g., a fall-induced hip fracture) or incident (e.g., a stroke). To significantly impact the healthy aging initiative, our profession must leverage our expertise in movement and exercise prescription, along with our counseling abilities, to motivate clients across the health continuum to engage in regular physical activity in their daily routines. In summary, it is essential to include the promotion of physical activity into our efforts with older adults to avert chronic diseases that diminish their functional capacity, quality of life, and overall well-being.
Keywords: Elderly Population, Movement and Exercise Prescription, Stroke Prevention, Health Continuum, Chronic Illnesses

Introduction

One commonly accepted and endorsed strategy for aging well is physical activity. It enhances cognitive health and mobility, which are essential attributes for functional capacity and significant indicators of overall health [1]. Regular physical activity is the most effective behavioral intervention for enhancing health span and facilitating healthy aging [2]. Physical activity is a crucial method for increasing life expectancy, as it effectively prevents chronic noncommunicable diseases such as diabetes, cardiovascular disease, and dementia [3]. Physiotherapists play a crucial role in falls prevention, contributing significantly to the promotion of healthy aging [4]. Due to the presence of multiple comorbidities in many older individuals who experience falls, physiotherapists are best suited to implement this program, possessing the necessary expertise to customize it according to individual requirements [2].

Around 10 percent of the world's population, or 771 million people, will be 65 and older in 2022. This category is experiencing significant growth, with projections indicating it will encompass 16 states. The proportion of individuals aged 65 and older has more than tripled over the past century, increasing from 4% to 12.9%. Falls, cardiovascular disease, and difficulties with daily activities are common, though not universal. Physiological changes associated with normal aging, prevalent diseases and syndromes in individuals over 85 years of age, cognitive and psychological alterations, social and environmental transformations, followed by an examination of common discussions that clinicians frequently have with these patients and their families. Normal aging encompasses certain declines in hearing and vision, along with a reduction in immunological function. Cardiovascular disease, osteoporosis, and dementia are prevalent chronic conditions among individuals aged 85 and older. The aging population and increasing rates of obesity will lead to a higher prevalence of osteoarthritis, diabetes, and associated mobility disabilities [5]. Osteoarthritis ranks as the second most prevalent chronic condition, leading to persistent pain and disability among older Americans. In a study, 52 percent of individuals aged 85 were diagnosed with osteoarthritis [6]. Research from the US Census indicates that 73% of Americans aged 85 and older experience some difficulty with walking. Mobility impairment is associated with social isolation, increased risk of falls, and depressive symptoms. Approximately one-third of disabled adults aged 85 and older reside independently. Falls represent a significant source of morbidity and disability in older adults, with 30-40% of individuals over the age of 70 experiencing falls annually. The incidence is particularly elevated among older adults residing in long-term care facilities. Falls constitute over 50% of injuries in older adults, with individuals aged 85 and above exhibiting a higher mortality rate [7]. A comprehensive approach to elder care highlights the necessity of

addressing all dimensions of an individual's well-being, encompassing physical, mental, emotional, social, and spiritual health. This approach offers several advantages, such as enhanced quality of life, tailored care plans, preventive and proactive healthcare, increased empowerment and independence, and the engagement of family and friends.

The Role of a Physical Therapist

Geriatric care is complex due to the multitude of problems necessitating the competence of several professions. Musculoskeletal, cardiovascular, and neurological disorders are prevalent in the senior population [8]. These categories may intersect, as elderly individuals often present with various medical issues. Due to the impact of aging on the health status and illness presentation of older adults, it is advisable for physiotherapists working with this demographic to be proficient in musculoskeletal, neurological, and cardiovascular examination and management. A physiotherapist specialized in geriatric care must possess a comprehensive understanding of physiotherapy techniques across all three domains, emphasizing the treatment of elderly individuals [9].

Physiotherapy is an essential element of the comprehensive geriatric assessment (CGA), demonstrated to improve outcomes for elderly individuals, particularly those who are frail. A CGA technique is employed in effective orthogeriatric management and in the emerging domain of perioperative surgical care for the aged [9]. Evaluations and therapeutic strategies for the elderly should adhere to national standards and norms. The evaluation of elderly individuals differs from that of younger individuals by considering the physiological changes associated with aging. The most inclusive and worldwide method of rehabilitation is the World Health Organization's (WHO) International Classification of Functioning, Disability, and Health [10]. The International Classification of Functioning (ICF) is a framework enabling healthcare professionals to evaluate various impairments and connect them to significant aspects of an individual's life, thereby informing assessment, goal formulation, and treatment strategies. The ICF assists clinicians in performing a comprehensive assessment of the elderly. The ICF aids physicians in assessing the impact of impairments on daily activities and an individual's ability to fulfill social responsibilities in later life [11].

Medical History: Getting a complete medical/surgical history and a history of supporting medications is essential. The Influence of Medication on movement: Medication, especially in the elderly, can profoundly impact movement and elevate the risk of falls. Underreported Major Medical Conditions: Individuals may neglect to disclose critical medical disorders, such as cardiovascular diseases, thereby jeopardizing their health. Social History: Essential, elderly individuals often need on formal or informal support from family and friends. How can a physiotherapist and other allied health providers facilitate rehabilitation for an older individual who is being released home alone but is unable to stand comfortably to prepare meals or walk to the grocery store? The ICF can assist clinicians in the assessment process and function as a checklist to guarantee the inclusion of all critical histories and evaluations [11].

Falls Prevention and Balance Enhancement

Instability is a significant challenge in geriatric medicine. Falls can initiate a decline in mobility, reduced self-assurance, and disability, ultimately resulting in institutionalization. Annually, almost one-third of individuals aged 65 and beyond experience falls, with fifty percent of these incidents being recurrent. About one in ten falls results in a major injury, such as a brain injury, subdural hematoma, hip fracture, other fracture, or other serious soft tissue injury [12]. Admissions related to falls have remained constant over the past decade, highlighting an urgent necessity to develop effective, acceptable, and sustainable fall prevention strategies for the elderly. Enhancing balance and engaging in lower-limb resistance training have been recognized as the most effective exercise modalities for fall prevention in older adults [13]. Consequently, physical activity has been demonstrated to mitigate this effect.

Nonetheless, it remains uncertain whether type of exercise will be most efficacious for this objective [14]. Enhanced physical activity decreases overall morbidity and mortality, as well as the likelihood of falling by 30% to 50% [15]. Leg strength and balance training have been recognized as effective treatments for mitigating fall risk. Nonetheless, balance training should be a key component of fall prevention since it is the basis for the ability to move and stay upright [16]. Nearly all studies regarding fall risk in the elderly concur that physical activity, particularly recreational activities, is an effective method for sustaining balance and preventing falls [17]. Numerous studies have examined different forms of exercise, including Pilates, stair climbing, vibration training, and dance [18]. All of these trials exhibited substantial enhancements in balance capability and provide evidence that physical activity can reduce the likelihood of falls. Tai-Chi training is a conventional fitness intervention known to enhance balance and was utilized as a comparator intervention in the study conducted by Zhao et al. The effects of Tai-Chi on balance in older populations have been the subject of numerous systematic reviews and meta-analyses, all of which have come to the conclusion that this type of exercise is beneficial for improving functional measures of quality of life in the elderly, such as strength or flexibility, as well as for improving balance and lowering the risk of falls [19].

Pain Management and Mobility Improvement

Chronic pain is a prevalent health issue in older adults (aged 65 and beyond) and is associated with significant disability. Chronic pain restricts mobility in the elderly, correlates with depression and anxiety, and can hinder familial and social relationships [20]. In the care of older individuals, it is essential to evaluate the overarching therapeutic objectives of treatment. Improving impairment (loss of physiologic or anatomical structure or function) is the main objective of rehabilitation, and this is usually achieved through procedures that target the underlying pathophysiologic cause (e.g., core strengthening and stabilization exercises for degenerative lumbar spondylosis). When enhancement of impairment appears improbable, rehabilitation should concentrate on ameliorating patient disability (limitations in the capacity to execute an activity attributable to impairment) [21].

Various therapeutic approaches have been shown to enhance musculoskeletal function and outcomes when the impairment is subject to improvement. Physical therapy regimens that prioritize strength training significantly enhance overall mobility, balance, and physical function in the elderly population [22]. Resistance-based strengthening therapies have significantly enhanced patient-reported pain results in elderly individuals with hip or knee osteoarthritis [23]. Comparable functional enhancements in the elderly demographic have been observed across several active therapeutic modalities. A study including persons aged 60 and above shown that high-intensity strengthening regimens (8 repetitions at 80% of one-repetition maximum) and low-intensity strengthening regimens (13 repetitions at 50% of one-repetition maximum) resulted in comparable enhancements in endurance and functionality.[24] Low-impact modalities, like Tai Chi and aqua-aerobic exercises, may enhance balance and musculoskeletal function when practiced regularly and consistently [25].

Encouraging older people to participate in sessions at an exercise or community facility with a qualified and attentive instructor may mitigate adverse effects and enhance mood by fostering pleasant social interactions [25]. Older folks should maintain an active lifestyle for a plethora of benefits, including improved physical and mental health, greater cognitive function, reduced risk of chronic diseases, and increased social engagement. Participate in pleasurable activities incrementally and solicit assistance to maintain motivation.

Rehabilitation after Surgery or Injury

Hospitalizations due to cardiac events, infections, fall-related injuries, strokes, cancer, or surgical and medical procedures are prevalent among the senior population [26]. Physiotherapy is an essential element of postoperative rehabilitation. It can assist patients in regaining strength, mobility, and independence while also minimizing the danger of re-injury. Physiotherapy can help you achieve your goals safely and successfully, whether you have had a small surgery or a huge operation. Consult your physician or surgeon regarding the significance of physiotherapy in your rehabilitation process if you are scheduled for surgery or have recently undergone one. You can attain your recovery goals and return to your everyday activities as soon as feasible with the suitable physiotherapy program [27].Geriatric Rehabilitation (GR) seeks to enhance the quality of life and restore functionality in elderly individuals, especially those with significant impairments and/or frailty [28]. The contemporary rehabilitation strategy prioritizes functionality and well-being over illness [29]. Rehabilitation for elderly adults facilitates the maintenance of functional independence and the improvement of quality of life [30]. 11% of geriatric patients are referred to rehabilitation facilities following hospital admission [31]. Rehabilitation for older adults should prioritize functional activities to sustain mobility and competence.

Orthopedic conditions such as osteoarthritis, fractures, and dislocations frequently require physical therapy to improve mobility and alleviate symptoms. Osteoarthritis, a degenerative condition, often affects the hands, ankles, fingers, spine, and knees, making daily activities involving flexibility and fine motor skills challenging. Physical therapy can assist in managing pain and improving joint function. Fractures, particularly in the elderly, are another common concern due to diminished bone mineral density with age, exacerbated by factors such as unsteady balance and vision issues. Postmenopausal women are especially susceptible, as mineral deficiencies lead to brittle bones. Strength training exercises prescribed by physical therapists can enhance bone strength and reduce fracture risk. Dislocations, which occur when bones move out of their natural joint alignment, are often the result of falls. Older individuals experiencing dislocations typically feel immediate pain that subsides once the joint is repositioned by a physician, followed by physical therapy to restore joint function and prevent recurrence. These conditions highlight the critical role of physical therapy in managing chronic orthopedic issues effectively [32].

Neuro-Muscular Re-Education Training

Manual approaches, such as proprioceptive neuromuscular facilitation (PNF), balance and core control activities, including Bosu and therapeutic ball exercises, along with other therapeutic exercises, are employed in neuromuscular re-education to restore normal, regulated movement patterns. The objective of neuromuscular re-education exercises in the outpatient orthopedic context is the same as it is in any other situation: to re-train a body component to accomplish a previously capable task [33].

Balance and proprioception exercises play a crucial role in enhancing stability and coordination. Activities such as single-leg balancing or standing on unstable surfaces challenge the body to recruit stabilizing muscles and activate neural pathways responsible for maintaining balance. Proprioception exercises further refine the body's sense of position and movement, improving overall stability and coordination. Similarly, dynamic stability and agility training focus on movement control across multiple planes of motion. Exercises like lateral lunges and single-leg squats enhance balance and stability during complex tasks, while agility drills using ladders or cones develop quickness, reaction time, and directional changes. Additionally, core and functional strength exercises are essential for building a strong foundation. Core workouts target the abdominal, lower back, and pelvic muscles, improving body control and reducing injury risks. Functional strength training, which mimics every day or sports-related movements, helps ensure proper movement patterns and enhances overall physical performance. Together, these exercise modalities contribute to improved stability, control, and resilience in various activities.

Chronic Disease Management

Physiotherapy can alleviate pain associated with conditions such as arthritis or osteoporosis. Joint pain is often caused by joint inflammation, trauma, arthritis, gout, and other reasons. If untreated for a prolonged duration, it may restrict mobility and induce weakness or instability in executing routine activities. The physiotherapist strives to restore muscle, bone, joint, tendons, and ligament function [34].

Physiotherapy is essential for regaining functionality, alleviating pain, and enhancing quality of life. Consistent exercise can lead to enhanced balance, strength, coordination, motor control, flexibility, endurance, and memory. It also aids in preserving cognitive function, diminishes the likelihood of heart disease, and facilitates the performance of daily duties with ease. Physiotherapy improves happiness and self-esteem, decreases fall risk, and mitigates the effects of illnesses more prevalent in older adults. It addresses and prevents joint issues, balance impairments, muscular weakness, and mitigates hypertension and obesity. Moreover, physiotherapy has demonstrated efficacy for elderly individuals experiencing ailments such as joint stiffness, inflexible ligaments, general mobility issues, Parkinson’s disease, arthritis, and neurological disorders [34].

Psychological and Emotional Wellbeing

Mental health is defined as a state of well-being wherein individuals recognize their potential, effectively manage common life stresses, engage in creative and productive work, and contribute to their communities [35]. Physical therapists engage with patients who may experience mental health concerns alongside other chronic health conditions, and exercise is recognized as an evidence-based intervention for individuals with mental health issues [36]. The prevalence of depression, anxiety, and other mental disorders necessitates a coordinated, multi-sectoral approach. To reduce this massive and expanding health issue and the resulting financial losses, treatment and prevention strategies must be developed in addition to increasing public awareness. The correlation between poor mental health and a higher incidence of musculoskeletal disorders, various pain types, and chronic, preventable diseases underscores the necessity for an effective, holistic interdisciplinary approach to managing these conditions [37].

Physiotherapists, as healthcare professionals, engage in health prevention and promotion, encompassing mental health as well. It is essential to inform individuals about mental health, correct misconceptions regarding mental illness, and refer them to qualified mental health and psychiatric professionals when necessary [38]. Motivation and encouragement are critical components in sustaining mental health among elderly patients. They are essential in assisting seniors in managing the challenges associated with aging, fostering positive well-being, and improving their quality of life. Motivation serves as the impetus for elderly patients to participate in activities that enhance their mental and emotional well-being. It promotes engagement in social interactions, the pursuit of hobbies, and the maintenance of a sense of purpose in life. Encouragement creates a caring and supportive atmosphere that gives older patients the confidence to tackle challenges. It entails offering positive reinforcement, acknowledging achievements, and demonstrating authentic care and concern for wellbeing.

Conclusion

Physical therapy plays a vital role in providing complete elder care, improving the general health of senior citizens. Physical therapists are essential in improving the quality of life for the elderly population by tackling a variety of concerns, such as fall prevention, pain treatment, mobility enhancement, and emotional support. An interdisciplinary approach to elder care that integrates physical therapy is crucial for enhancing health, independence, and overall quality of life for seniors.

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