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Challenges in Trauma Rehabilitation in Pakistan: An Editorial View

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EDITORIAL

Injury and trauma remain among the most persistent and under-recognized global public health burdens. Although trauma is frequently framed as an episodic or localized emergency, injury-related mortality and disability constitute a sustained "silent pandemic," affecting millions each year and disproportionately impacting working-age populations (1,2). Recent estimates suggest that injuries and violence account for over four million deaths annually worldwide, alongside an even larger burden of long-term disability and economic loss (1). While some sources cite higher estimates approaching six million deaths annually depending on definitions and data sources, the consistent global message is clear: trauma contributes to a major share of avoidable mortality and disability, and its societal consequences extend far beyond acute survival (1,2). In this context, rehabilitation is not an optional add-on but a core component of trauma care that determines whether individuals return to independence, productivity, and social participation.

Trauma is not limited to physical injury; it encompasses acute, chronic, or complex psychological and functional consequences arising from events such as road traffic crashes, falls, violence, and natural disasters. Clinically, trauma-related impairment may involve neurological injury, musculoskeletal damage, cognitive decline, and mental health sequelae, often requiring prolonged multidisciplinary management (2,3). Rehabilitation is therefore a comprehensive, goal-driven strategy aimed at restoring physical, cognitive, social, and emotional functioning. It involves integrated medical, educational, social, and vocational interventions, emphasizing functional capacity and real-world reintegration. Evidence consistently shows that traumatic injury can produce long-term declines in health status and delays in functional independence, and that structured rehabilitation plays a crucial role in restoring quality of life (3). In low-resource contexts, where disability often translates into loss of income and family-level hardship, rehabilitation becomes not only a clinical priority but also a socioeconomic necessity.

Pakistan, located in the WHO Eastern Mediterranean Region, faces a substantial injury burden, with road traffic crashes representing one of the most prominent causes of trauma-related morbidity and mortality. The WHO has estimated approximately 27,568 road traffic deaths in Pakistan in 2021, corresponding to 11.9 deaths per 100,000 population (4). These WHO estimates are especially important because national reporting systems may undercount fatalities due to limitations in surveillance and case capture. The discrepancy between modeled estimates and official records should not be viewed as a contradiction but rather as evidence of systemic underreporting and the need to strengthen injury surveillance. Regardless of the exact count, the sustained burden of road traffic injury underscores the need for an integrated trauma continuum, from emergency response to post-acute rehabilitation.

The 2005 Pakistan earthquake remains a defining event in the evolution of rehabilitation awareness and service development in the country. Official post-disaster assessments reported that more than 780,000 buildings were destroyed or severely damaged, and millions were displaced, with widely cited estimates around 3.5 million people left without shelter (5). Economic damage was substantial, with estimates commonly reported around 2.6% of GDP, while some analyses include indirect losses suggesting higher ranges (5). Beyond its immediate mortality and acute trauma consequences, the disaster exposed gaps in long-term rehabilitation care. Local and international emergency teams provided acute medical support, but post-acute rehabilitation, physiotherapy, occupational therapy, and psychological rehabilitation, was crucial in reducing impairment and promoting participation. Importantly, the disaster catalyzed institutional response through the Earthquake Reconstruction and Rehabilitation Authority (ERRA) and contributed to stronger recognition of physiotherapy services within the national health landscape (5). Reviews of rehabilitation responses in disasters support the view that structured post-disaster rehabilitation improves functional outcomes and quality of life, particularly when integrated into broader health system planning rather than treated as temporary aid (6).

Despite progress, the current trauma rehabilitation landscape in Pakistan remains constrained by structural, financial, and governance barriers. Acute trauma practitioners frequently support early rehabilitation approaches, including neurostimulation, range-of-motion exercises, strengthening, and mobilization, especially in neurological trauma such as moderate-to-severe traumatic brain injury (7). Yet, in Pakistan, the availability of such interventions remains uneven, typically concentrated in urban centers and tertiary hospitals. Rehabilitation may be offered through inpatient or outpatient departments, but facilities are limited and the budget allocated for rehabilitation is often marginal relative to acute care needs. Financial constraints remain one of the most persistent barriers to expanding services and ensuring continuity of care after discharge (8).

The challenges are not limited to funding. System-level barriers include weak policy frameworks, insufficient infrastructure, inadequate rehabilitation workforce distribution, poor access to assistive technology, limited referral integration, and low public awareness. Patients living in rural or difficult-to-reach areas face significant logistical burdens, including long travel times to secondary or tertiary centers, limited transport accessibility for individuals with mobility impairment, and high out-of-pocket costs associated with repeated therapy sessions (8). Rehabilitation integration is further constrained by a lack of role clarity among healthcare providers, limited understanding of rehabilitation disciplines outside physiotherapy, and inconsistent referral pathways. These challenges are frequently compounded by insufficient data systems to track rehabilitation needs, outcomes, and service utilization, weakening accountability and resource justification (9,10). Emerging evidence from Pakistan indicates that rehabilitation in secondary care settings often remains physiotherapy-centric, with limited availability of occupational therapy, speech therapy, prosthetics, or comprehensive multidisciplinary rehabilitation services, highlighting a persistent gap between ideal models of care and current service realities (10).

A particularly critical weakness is the discontinuity between acute trauma management and post-acute rehabilitation. Even where rehabilitation is initiated during hospitalization, there remains a paucity of structured pathways to ensure transition to rehabilitation services after discharge. Families often become the default caregivers without adequate training, therapy becomes financially unsustainable, and rehabilitation is prematurely discontinued due to lack of awareness or access. These barriers contribute to preventable disability, long-term dependence, and reduced participation in education, work, and community life. In trauma rehabilitation, the absence of organized transitions is not merely an administrative issue, it is a determinant of long-term outcomes.

If Pakistan is to address trauma rehabilitation effectively, reforms must be practical, scalable, and aligned with health system realities. First, rehabilitation professionals must proactively educate families and caregivers, equipping them with basic skills to support safe functional recovery at home. Second, rehabilitation services must become financially accessible through government-backed mechanisms, including public funding allocations, subsidized rehabilitation packages, or

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tax-based social protection models. Third, home-based and community-based rehabilitation programs should be strengthened and formalized, particularly for patients in remote areas who cannot access centralized facilities. Fourth, rehabilitation governance should be improved through clear policy frameworks that define referral pathways, minimum service standards, workforce requirements, and data collection systems to monitor outcomes. Finally, trauma rehabilitation policy must shift from a restoration-focused mindset to a function-focused model, prioritizing what is achievable in independence, mobility, communication, and participation rather than attempting to return individuals to their pre-injury state without sufficient support.

Trauma will continue to shape Pakistan's health burden through road traffic crashes, natural disasters, and daily preventable injuries. However, disability after trauma is not inevitable. A rehabilitation-centered trauma strategy, grounded in evidence, supported by sustainable financing, and implemented through integrated care pathways, can transform trauma from a life-long sentence of dependency into an opportunity for recovery, reintegration, and dignity.

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