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REVIEW ARTICLE

Physiotherapy in Disaster Management: Roles, Evidence, and Emerging Priorities

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ABSTRACT

Background: Geophysical, climatic, and biological disasters cause surges in musculoskeletal, neurological, and psychosocial impairments that exceed local capacity. Physiotherapists possess assessment, mobilization, and functional restoration skills corresponding to this surge; however, their inclusion in disaster management structures remains inconsistent worldwide.

Objective: To synthesize recent evidence published since global policy shifts, including the Sendai Framework and WHO Emergency Medical Teams standards, on physiotherapy's contribution to the mitigation, preparedness, response, and recovery phases of disaster management. The second aim was to identify persistent barriers constraining physiotherapist deployment, with attention to emerging data from low and middle-income countries (LMICs).

Methods: This narrative review examined recent literature on earthquakes, floods, conflict, and pandemics, along with policy documents from the World Health Organization and the World Physiotherapy. The synthesis covered epidemiology, workforce readiness, acute clinical management, long-term rehabilitation, psychosocial care, vulnerable populations, and structural barriers to integration.

Findings: Observational data suggest Physiotherapy improves outcomes after crush syndrome, spinal cord injury, and traumatic amputation, although physiotherapy-specific trials remain limited. The World Health Organization's 2016 standards require rehabilitation for Emergency Medical Teams. However, surveys show poor trainee and clinician preparedness, most countries lack physiotherapy in emergency plans, and data from Nigeria and the Philippines suggest the presence of structural and political barriers.

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Conclusion: Physiotherapy is clinically indispensable in disaster response but remains structurally under-integrated into health systems. Curricular reform, policy integration anchored to the Sendai Framework, and systematic evidence generation are needed to close this gap. This persistent gap separates the demonstrated clinical value from its actual application.

KEYWORDS

• Disaster management • Physiotherapy • rehabilitation • Emergency medical teams • Disaster preparedness • Humanitarian response

INTRODUCTION

Natural and man-made disasters have become more frequent over the past three decades, driven by rising population density, unplanned urbanization, and climate change.[1] Earthquakes, floods, cyclones, industrial accidents, and disease outbreaks disrupt health systems in various ways. However, they share one consequence: a sudden mismatch between injured survivors and available rehabilitation capacity. Advances in trauma surgery and critical care have steadily improved survival rates after mass-casualty events. This progress carries a less-discussed corollary: more people now live with fractures, amputations, spinal cord injuries, and crush syndromes than in earlier decades. More people who would have died at the scene now survive to undergo rehabilitation.[2] This shift in the injury-to-death ratio has changed the meaning of rehabilitation in disaster-response planning. It is no longer a peripheral concern but a central determinant of whether survivors regain independence and reintegrate into their family and community life.

Physiotherapists are well-positioned to respond to these needs, as their training aligns with post-disaster injury patterns. Musculoskeletal assessment, respiratory care, wound management, positioning, and mobility restoration are within the clinical scope of physiotherapy. Despite this clinical fit, physiotherapy is often considered an afterthought in disaster planning. It typically arrives only after acute surgical and medical needs have been addressed, if it arrives at all. The 2015 Nepal earthquakes illustrate the consequences of this sequencing, killing more than 8,500 people and injuring over 18,500. Rehabilitation professionals managed an unplanned discharge crisis because acute hospitals lacked the beds and systems needed to hold patients while capacity was mobilized.[3] Cross-sectional surveys in several countries have reported moderate physiotherapist knowledge of their disaster management role, and formal involvement lags behind their willingness to participate.

This review draws on recent literature to map physiotherapy's contribution across the full disaster continuum, not just the response phase. Sources included earthquake case series, humanitarian program evaluations, disaster-education research, and policy documents from the World Health Organization and World Physiotherapy. It also considers cross-cutting pressures reshaping disaster-ready practices, including climate change, pandemic surges, and the uneven global distribution of rehabilitation resources across income settings. The aim is not simply to catalogue what physiotherapists have done in past disasters. Instead, it aims to identify where the evidence is strong enough to guide policy. Elsewhere, it remains too thin to support the confident claims that the profession sometimes makes about its own readiness.

METHODS

This narrative review synthesized peer-reviewed literature and policy documents published predominantly after the adoption of the Sendai Framework (2015) through 2026, sourced via PubMed, Scopus, and the organizational repositories of the World Health Organization and World Physiotherapy. Search terms combined disaster types (earthquake, flood, conflict, and pandemic) with physiotherapy and rehabilitation-related terms. Eligible sources included observational studies, program evaluations, scoping and systematic reviews, workforce surveys, and policy documents addressing any phase of the disaster management continuum. Findings were synthesized narratively across epidemiology, workforce readiness, acute

clinical management, long-term rehabilitation, psychosocial care, vulnerable populations, and structural barriers without formal quality appraisal or meta-analytic pooling. To orient the reader to the evidence base underpinning this synthesis, eight studies judged most central to the disaster rehabilitation literature were tabulated and cross-checked against their source publications using the Consensus academic search platform (Table 1).

Table 1: Summary of Eight Key Studies Underpinning this Review

Author(s), Year	Study Design	Disaster / Setting	Sample	Key Findings
Rosado *et al.*, 2026[11]	Cross-sectional (tool development)	Portugal (higher education)	126 physiotherapy students, 6 institutions	61.9% interested in emergency/ humanitarian work; only 35.7% felt adequately prepared; marked gaps in burn management and psychological first aid despite strong empathy and collaboration scores
Kosakowski *et al.*, 2025[13]	Global organizational census	Worldwide (World Physiotherapy members)	National physiotherapy associations	64% of responding countries had not integrated physiotherapy into any national emergency plan; the gap was unrelated to income level
Rostami *et al.*, 2026[4]	Systematic review & meta-analysis	Earthquakes, multiple countries (1988–2023)	50 pooled studies	Pooled dialysis requirement 49%; pooled mortality 8% (regional range 1–26%) among earthquake-related crush syndrome patients
Bilir *et al.*, 2024[14]	Retrospective cohort	2023 Türkiye-Syria earthquake	141 rehabilitation admissions	Fractures in 53%; peripheral nerve injury 41%; amputation 31%; compartment syndrome 46%; physiotherapy delivered to nearly all admitted patients
Armstrong *et al.*, 2014[17]	Program evaluation (MSF)*	Sri Lankan conflict	89 patients with spinal cord injury	Structured multidisciplinary protocol from admission; over 80% achieved clinically meaningful functional improvement by discharge
Li *et al.*, 2019[20]	Cross-sectional	2008 Sichuan earthquake	Bilateral lower-limb amputees	Prosthesis use for over half of waking hours predicted better psychological adjustment; exercise participation correlated with higher mobility scores
Ojukwu *et al.*, 2021[5]	Cross-sectional survey	Nigeria	Nigeria-based/trained physiotherapists	90% cited absence of a formal integration policy; 89% cited lack of a recognized disaster-health clinical practice area
Hermosilla *et al.*, 2023[22]	Systematic review	Multiple humanitarian/ disaster settings	Trials of psychological first aid	Reduced anxiety, depression, and traumatic distress; only one of the included trials was randomized

***MSF** = Médecins Sans Frontières. Studies were selected to represent each phase of the disaster management continuum (preparedness, acute response, recovery, and structural barriers) and cross-checked against source publications using the Consensus academic search platform.*

The Disaster Management Continuum and the Case for Rehabilitation

Disaster management is conventionally described across four overlapping phases: mitigation, preparedness, response, and recovery, each with distinct operational priorities and strategies. Mitigation and preparedness occur before an event and aim to reduce vulnerability through infrastructure planning, workforce training, and stockpiling essential supplies. The response covers the acute post-impact period when search, rescue, and emergency medical care dominate every available resource. Recovery extends from weeks after an event through the months and years needed to restore function, livelihoods,

and community structures. Physiotherapists have identifiable tasks across all four phases; however, international attention, funding, and research efforts concentrate overwhelmingly on the response phase alone. Mitigation, preparedness, and recovery remain comparatively neglected in both practice and the published literature.[8]

A scoping review of rehabilitation preparedness in low and middle-income countries searched 12 years of literature. Only 27 eligible studies were found, which is a small evidence base for such a practical topic.[8] None addressed rehabilitation financing or assistive technology supply chains, which determine whether services can be sustained once attention moves elsewhere. Service delivery has dominated the literature, whereas workforce planning, information systems, and governance have received limited attention. This imbalance matters for disaster planners because a health system unprepared for a rehabilitation surge cannot improvise one afterward. Rehabilitation depends on trained personnel, equipment, and referral pathways that cannot be assembled overnight. The Nepal earthquakes illustrate this, with professionals forced to improvise protocols, pressure care, and outpatient follow-ups under unanticipated conditions.[3]

Amatya and Khan argue that rehabilitation belongs at every stage of this continuum, not only at its tail end.[2] Early mobilization and positioning during the acute phase directly shape long-term disability outcomes in survivors. Contractures, pressure injuries, and deconditioning that develop within days of injury are often far more difficult to reverse than to prevent. Their review notes a broad international consensus on this principle among specialists working across very different disaster contexts. However, few disaster-prone countries have translated this consensus into an operational plan with defined roles, staffing ratios, and funding lines. This gap between the stated principles and everyday practice recurs throughout the literature reviewed here. Much of what follows attempts to explain why this gap persists and what might close it.

Policy Architecture: The Sendai Framework and Health-EDRM

Much of the momentum behind rehabilitation-inclusive disaster planning can be traced back to a single global policy document. The Sendai Framework for Disaster Risk Reduction 2015–2030 was adopted by 187 member states, replacing the earlier Hyogo Framework.[9] It explicitly placed health at the center of disaster risk reduction, rather than treating it as a downstream consequence to be managed separately. The text contains more than 30 direct references to health, including specific mentions of rehabilitation. This is a meaningful shift since global frameworks of this scale rarely name a specific clinical discipline. This provided health ministries and professional bodies with a useful formal policy hook. They could now argue that rehabilitation deserves the same systematic investment as surgical or trauma capacity in national-disaster planning.

The World Health Organization's Health Emergency and Disaster Risk Management framework further operationalized this commitment. It describes the functions needed across prevention, preparedness, readiness, response, and recovery for health system resilience. A five-year review of Sendai implementation found real progress in embedding health into disaster-risk governance at the national level. It also found persistent inconsistency in how national programs translate global commitments into funded, staffed, local action.[10] This is a familiar pattern in global health policy, where signed commitments routinely outpace domestic budg*et al*locations. Specifically, this policy architecture offers real practical leverage for physiotherapy rather than mere abstraction. National associations negotiating disaster preparedness budgets can point to an existing global framework that already mandates rehabilitation.

This distinction between global policy commitment and national implementation runs through the remainder of this review paper. It is one thing for a policy framework to name rehabilitation as being clinically important. It is quite another thing for a health ministry to actually fund a rehabilitation coordinator position. It is still another reason for a national Emergency Medical Team roster to include a physiotherapist as standard.

Physiotherapy in Mitigation and Preparedness

Preparedness begins with workforce readiness, and the available evidence on this front is sobering. A Portuguese study developed and

validated a disaster-readiness assessment tool for physiotherapy students, addressing a gap since no such standardized instrument existed previously.[11] While 62% of surveyed students expressed interest in emergency and humanitarian work, only 36% felt adequately prepared to do so. The study also identified a specific competence gap worth close attention from curriculum designers. Students rated themselves as strong in empathy and interprofessional collaboration but notably weaker in specialized rehabilitation skills relevant to disaster injury. Burn management scored particularly low in the survey, despite being a core disaster-injury competency.

A broader scoping review examined disaster responder competencies among physicians, nurses, and paramedics. No single, globally recognized, minimum competency standard was found at the individual responder level.[12] The authors traced this gap back to the 2010 Haiti earthquake response. Several deployed medical teams were poorly prepared for field practice despite meeting organizational-level accreditation standards on paper. This illustrates that organizational certification and individual clinical readiness are not the same. Physiotherapy has not yet been included in this competency-mapping work; therefore, the profession lacks an agreed benchmark against which training programmes can be measured.

At the policy level, the World Health Organization's Minimum Technical Standards for Rehabilitation marked a clear turning point. Published for Emergency Medical Teams in 2016, rehabilitation capacity was made a formal requirement for the first time in the classification system's history.[7] Before this document was created, teams could achieve full WHO classification without any rehabilitation provider. A deployed field hospital could be certified as fit for purpose while offering no structured pathway from acute surgical care to functional recovery. In contrast, surgical and medical standards in emergency medicine have existed for several decades. Rehabilitation was simply catching up to a benchmark that the rest of emergency medicine had long taken for granted.

However, a recent 2025 census of World Physiotherapy member organizations found troubling gaps in implementation. Approximately 64% of the respondent countries had not integrated physiotherapy into any national emergency plan.[13] Income level was not a strong predictor of this shortfall, which spanned wealthy and resource-limited health systems in roughly equal proportions. This suggests that the barrier is institutional and political rather than primarily one of resources, a theme to which the review returns later. Taken together, these three strands of evidence–student readiness, responder competency standards, and national policy integration–point toward one achievable need. Disaster management content should be embedded across the entire physiotherapy training programme, sequenced from early clinical years to final placements. This approach is better than compressing the topic into a single optional elective that graduates can easily skip.

Physiotherapy in the Acute Response Phase

The acute response phase generates an injury pattern that physiotherapists are especially well-equipped to manage. This pattern includes fractures, crush syndrome, peripheral nerve damage, spinal cord injury, and traumatic amputation, which often occur simultaneously in the same patient. A retrospective analysis of 141 rehabilitation admissions after the February 2023 Türkiye-Syria earthquake found fractures in 53% of the cases. Peripheral nerve injury, amputation, and compartment syndrome were observed in 41 %, 31%, and 46% of patients, respectively, with a caseload of striking complexity.[14] Survivors in this cohort were trapped under the rubble for an average of ten hours before extrication. This delay predicted worse musculoskeletal and renal outcomes, yet physiotherapy was still delivered to nearly all admitted patients. This reach exceeded every other rehabilitation discipline combined, highlighting the prominent role physiotherapy can play once this population enters a rehabilitation setting in similar post-earthquake contexts.

Crush syndrome deserves particular attention, as it lies at the interface of surgical and rehabilitative care rather than belonging cleanly to either discipline. A systematic review and meta-analysis spanning 50 studies from 1988 to 2023 quantified its overall burden with unusual precision.[4] Approximately half of the patients with earthquake-related crush syndrome in this analysis ultimately required dialysis. This reflects the severity of rhabdomyolysis and acute kidney injury,

which typically accompany prolonged limb compression. Pooled mortality reached 8%, with wide regional variation closely tied to the responsiveness and resourcing of local emergency systems. Early fasciotomy, fluid resuscitation, and mobilization decisions shape whether a limb ultimately survives intact. These decisions place physiotherapists firmly within the acute care team, rather than as downstream providers brought in afterward. Nonetheless, collective reviews of the surgical and critical care management of these injuries describe a continuing shortage of high-quality trial evidence. Basic decisions, such as the optimal timing of fasciotomy, still rely heavily on expert consensus rather than randomized evidence.[15]

Spinal cord injury after sudden-onset disasters presents a distinct set of clinical challenges. The experience from the 2005 Kashmir earthquake offers a particularly instructive example of what is achievable under severe resource constraints. Makeshift units staffed by rehabilitation specialists achieved zero mortality among patients with spinal cord injury despite minimal equipment.[16] The authors attributed this outcome to dedicated positioning, bladder management, and skin care protocols, rather than any specific technology. This demonstrates that good outcomes depend heavily on basic, protocol-driven care rather than advanced resources alone. Advanced resources are often unavailable in the immediate aftermath of major earthquakes.

Where structured programs have been established despite real constraints, the results still appear encouraging. Médecins Sans Frontières ran a spinal cord injury program during the Sri Lankan conflict. The program followed a formal multidisciplinary protocol integrating medical, nursing, and rehabilitation input from admission. Eighty-nine patients showed significant gains in independence scores, and over 80% achieved clinically meaningful functional improvement by discharge.[17] These **figures** compare favorably with outcomes reported from many far better-resourced rehabilitation units. They lend weight to the argument that adherence to a structured protocol, not resource intensity alone, may determine early spinal cord injury outcomes.

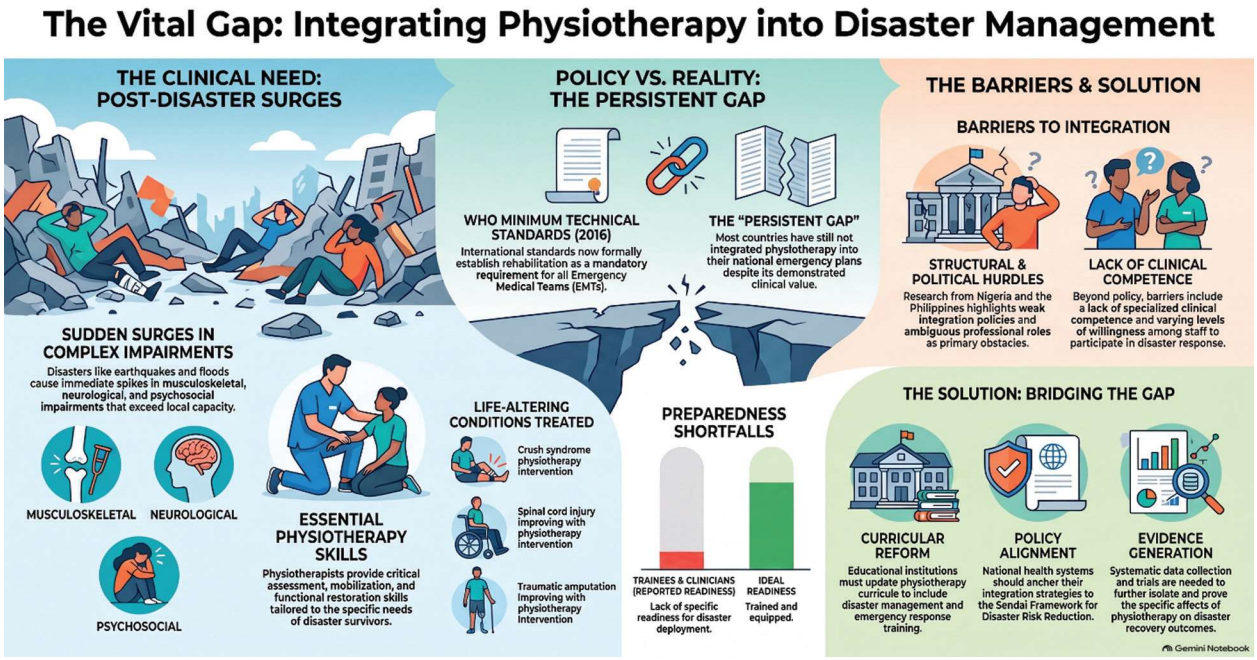


Figure 1: Graphic Abstract of the Study

Traumatic amputation in disaster settings follows a similar pattern of urgency and clinical complexity. Consensus statements issued after the 2010 Haiti earthquake called for early rehabilitation involvement in amputation decision making.[18] They recommended that specialists should be involved in surgical planning before amputation, rather than

only afterward. Limb length and soft-tissue decisions made at the operating table directly determine future prosthetic fit and functional outcomes. Emergency Medical Teams have gradually incorporated rehabilitation into their field operations in response to lessons of this kind, although the pattern remains uneven. Singapore's team added a physiotherapist beyond the WHO's stated minimum after the 2025 Myanmar earthquake. This single addition meaningfully improved rehabilitative capacity throughout the entire deployment. Over eight days, the team managed more than 1,800 patients at a single field site.[19]

Physiotherapy in Recovery and Long-Term Rehabilitation

Recovery-phase rehabilitation extends well beyond hospital discharge, with outcome data spanning years rather than days or weeks. This longer timescale sharply contrasts with the days or weeks that dominate acute response research. Bilateral lower-limb amputees from the 2008 Sichuan earthquake showed that prosthesis use for over half the waking hours predicted better psychological adjustment.[20] This suggests that functional device use and psychological recovery are closely linked rather than being sequential processes. Exercise participation was also independently correlated with notably higher mobility scores among the same survivors. This reinforces the fact that active rehabilitation engagement, not device provision alone, drives meaningful long-term functional gain. These findings support structured, sustained rehabilitation programming rather than a single isolated intervention; fitting followed by minimal follow-up is demonstrably insufficient.

India's experience offers an instructive parallel: the 2018 flood response in Kerala displaced over five million people across the state.[21] The subsequent recovery efforts combined decentralized local governance with mobile mental health teams and primary care integration. This approach has since been widely described as a model for coordinated post-disaster rehabilitation. The psychosocial dimension of that response was just as demanding as the physical one. The program reached a substantial share of the displaced population through newly appointed counsellors and trained community health workers. This scale illustrates what an integrated recovery response can achieve when local governance can coordinate physical and psychosocial rehabilitation.

Longer-term outcome data remain sparse in the literature but are sobering wherever they exist. Multilimbed loss and severe crush syndrome generate rehabilitation needs that persist for many years. These needs encompass ongoing prosthetic maintenance, chronic pain management, and periodic surgical revision as the residual limb anatomy changes over time. However, health systems rarely fund these rehabilitation programs on a realistic and sufficiently extended timescale. Humanitarian and government funding cycles are typically structured around acute responses, tapering sharply within the first year or two. This taper occurs precisely when many severely injured survivors are only beginning the middle phase of a multiyear recovery. This mismatch between the actual duration of disability and the funded duration of support recurs consistently in the recovery-phase literature. This represents a policy failure that, in principle, is far easier to correct than the clinical uncertainties discussed elsewhere in this review.

Psychosocial Dimensions and Interprofessional Collaboration

Physical and psychological recovery become inseparable the moment a disaster strikes a community. Physiotherapists are among the first clinicians to build sustained contact with survivors, as rehabilitation requires multiple sessions rather than single encounters. These sessions unfold during volatile weeks, while survivors are processing physical injury, loss of home or livelihood, and often bereavement. Psychological first aid has become the dominant early mental health framework in these settings since then. It promotes safety, calm, connectedness, self-efficacy, and hope rather than any formal clinical intervention. Formal counselling plays a minor role in this model, reflecting the belief that acute post-disaster distress is usually normal. It is not treated as a clinical disorder requiring formal psychiatric intervention at this stage.

A systematic review of studies evaluating psychological first aid found broadly consistent benefits.[22] Anxiety, depression, and traumatic distress were meaningfully reduced following delivery, and mood and social connectedness improved alongside them. However, only one of the included trials was randomized, leaving the evidence base narrower than it

first appears. It is also more fragile than the widespread international adoption of the framework suggests. An intervention can be intuitively sensible and widely endorsed while still being under-tested by the standards normally expected before recommending it at this scale.

Physiotherapists are not typically trained as dedicated mental health specialists, and this review does not argue that they should become one. However, readiness surveys have shown that physiotherapists themselves clearly recognize this particular competence gap.[11] Physiotherapy students report low self-rated competence in psychological first aid, alongside notably high confidence in general interpersonal skills such as empathy. This points toward an achievable curricular need: physiotherapists do not need to become trained counsellors. They need to recognize acute psychological distress, respond appropriately, and refer patients onward once their needs exceed what rehabilitation alone can address.

Interprofessional teamwork broadly determines whether disaster response functions as a coordinated system or a collection of parallel specialists working past each other. Role clarity, shared workspaces, and structured communication are consistently important under real operational pressure. Under this pressure, patient volume and acuity leave little room for the informal coordination that suffices in routine practice. Disaster-specific simulation exercises showed measurable gains in team maturity and coordination speed after repeated deliberate practice. This suggests that interprofessional competence in disaster settings is trained through rehearsal, not simply assumed from individual discipline-specific competence.

Vulnerable Populations and Cross-Cutting Pressures

Disasters do not distribute risks evenly, and older adults, people with pre-existing disabilities, and children face compounded vulnerabilities. This added risk arises from reduced physical resilience and greater dependence on care arrangements that disasters routinely disrupt. It also reflects a reduced ability to evacuate, communicate needs, or advocate for oneself during chaotic early responses. Disaster planning frequently overlooks the distinct needs of these groups, defaulting to generic response protocols designed for a notionally able-bodied adult population.

A systematic review of climate-disaster impacts on marginalized groups found consistently elevated health burdens. These burdens fell hardest on poorer communities, older adults, and people with disabilities.[23] Strong social capital within a community reliably buffers at least some of these effects. Community-based physiotherapists are well-positioned to build client-level emergency preparedness in these high-risk groups. Their existing relationships with older and disabled patients through routine practice make this readiness possible. However, most physiotherapists still lack the tools, protocols, and training to perform this systematically. A valuable opportunity for pre-disaster risk reduction at the individual patient level remains largely unrealized.

Three additional forces will shape disaster-ready physiotherapy practice in the future, extending beyond the sudden-onset earthquakes and floods that have historically dominated the literature. The first force is climate change itself, as extreme weather events accelerate under the current emissions trajectories.[1] Risk-reduction measures implemented well ahead of the impact could prevent much of the resulting harm. Climate adaptation and disaster risk reduction can no longer be treated as separate agendas. They belong squarely within routine health system strengthening, not as a specialized side project. For physiotherapy, disaster readiness is no longer a rare contingency; in flood- and cyclone-prone regions, it is becoming a recurring operational demand.

The second force is the recognition of pandemics as a distinct biological disaster. Pandemics unfold over many months, rather than the minutes-to-hours timescale of an earthquake. COVID-19 forced physiotherapy services worldwide to build rapid clinical guidance under real operational and infection control pressure.[24] The guidance covered intensive care mobilization, prone positioning, and respiratory management delivered under ongoing personal infection risk. Post-acute rehabilitation needs also proved substantial once patients survived their critical illness. Physical, cognitive, and psychosocial impairments commonly require structured

follow-up care, a pattern that closely parallels post-earthquake and post-conflict recovery. The pandemic also exposed how quickly routine rehabilitation services can collapse under sustained, system-wide pressure. Therefore, disaster preparedness planning should never be conceived too narrowly around geophysical events alone.

The third force is digital delivery, which the pandemic accelerated across the profession. Telerehabilitation has transitioned from a niche innovation to a mainstream continuity tool in various settings. It retains real clinical value wherever local physical infrastructure is damaged or inaccessible. Real constraints remain, including infrastructure gaps, low digital literacy, and unresolved regulatory uncertainty regarding emergency credentialing across jurisdictions. Therefore, telerehabilitation should supplement in-person disaster rehabilitation rather than fully replacing it.

Barriers and the Way Forward

Barriers limiting physiotherapist integration recur across different national contexts, indicating that these are not idiosyncratic problems but a shared structural pattern. In Nigeria, physiotherapists cited two main obstacles: 90 percent pointed to the absence of a formal integration policy. Another 89 percent separately cited the lack of a recognized disaster health clinical practice area.[5] A study from the Philippines found a similar gap: physical therapists rated their preparedness as moderate, yet their actual involvement lagged well behind.[6] Unclear role delineation and weak interprofessional collaboration explain the gap, not any shortfall in clinical competence. Willingness to participate was never the limiting factor in either country under review. Taken together, these findings converge on the same diagnosis across different national settings. The constraints are structural and political rather than a shortfall in clinical competence or willingness to work.

Addressing this persistent gap requires coordinated action across several distinct system levels. The Disaster Rehabilitation Response Plan proposes a clear three-tier organizational structure for the field.[25] National and international coordination sits at the top, with the organized deployment of rehabilitation personnel in the middle tier. Direct clinical management and community reintegration anchor the operational base, where the patient-facing work in this review takes place. This framework offers professional bodies a template for building standing coordination capacity ahead of the next disaster. This beats scrambling to assemble capacity reactively only after an event has already occurred. Ad hoc, event-by-event mobilization cannot achieve the same kind of lasting institutional readiness.

Curricular reform forms a second necessary lever, and readiness research consistently points in the same direction. This calls for embedding disaster content across an entire training program, rather than compressing it into one optional elective.[11,12] A substantial share of any cohort will simply skip an elective if given the choice to do so.

Advocacy and systematic data generation together form a third pillar of this needed reform. Scarce evidence limits advocacy because policymakers generally tend to fund only what is measured.[8] Systematic post-disaster reporting offers a clear mechanism for closing the persistent evidence gap over time. It allows physiotherapy associations to clearly demonstrate their real contributions with hard data, not anecdotes. This evidence strengthens negotiations with health ministries over the integration policy that clinicians in Nigeria and the Philippines identified as the most consistent barrier.

LIMITATIONS

This narrative review has some limitations. Its non-systematic methodology limits reproducibility and may also introduce selection bias, as no formal risk-of-bias appraisal or reporting-guideline checklist was applied. The evidence base itself is skewed toward earthquake-related, English-language, and better-resourced settings, with high-quality randomized trials being scarce. Outcome measures varied considerably across the included studies, precluding a quantitative synthesis. Recency was prioritized over comprehensiveness, meaning that some older but relevant literature may have been omitted from this narrative synthesis.

CONCLUSION

Physiotherapy is clinically indispensable in disaster response but remains structurally

under-integrated across health systems. Rehabilitation-inclusive planning consistently improves outcomes in spinal cord injury, crush syndrome, and traumatic amputations. Psychosocial and interprofessional competence determine whether planning becomes practice rather than remaining a policy aspiration. The Sendai Framework and WHO's Health-EDRM have provided a foothold for the profession, but implementation remains inconsistent in both wealthy and resource-limited systems. Recently, climate change, pandemic risk, and digital delivery have increased disaster readiness demands. Core barriers persist, including weak policy integration, inconsistent training, and a thin research infrastructure that leaves advocacy without evidence. Closing this gap requires education, professional associations, and disaster authorities to work closely together. Only then does rehabilitation take its place as a pillar of disaster health planning.

Conflict of Interests: None

Ethical Approval: As study is a narrative review of the published literature and does not involve human participants or primary data collection, institutional ethics committee approval was not required.

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AI USAGE DECLARATION

Generative AI was used for language editing, improving clarity and readability.

PLAIN LANGUAGE SUMMARY

Disasters such as earthquakes, floods, and pandemics leave many survivors with broken bones, nerve damage, or life-changing injuries such as amputations. Physiotherapists have the exact skills needed to help these people move again and rebuild their lives, yet they are often left out of disaster planning. This review examined recent research and found that physiotherapy clearly improves recovery; however, most countries still have no formal plan to include physiotherapists in emergencies. The main problems are poor policies and unclear roles, not a lack of willingness among the physiotherapists. Better training, stronger policies, and more research could help close this gap.

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