
IMPACT OF NURSING INTERVENTIONS ON PHYSICAL RECOVERY OF DISASTER VICTIMS: A SCOPING REVIEW

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ABSTRACT

Disasters, whether natural or human-induced, frequently lead to significant physical injuries and complex health conditions among affected populations. In such contexts, nurses serve as frontline responders who deliver critical care aimed at promoting physical recovery and preventing further complications. This scoping review explores and synthesizes existing literature on the impact of nursing interventions on the physical recovery of disaster victims. The review was conducted in accordance with the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines. A systematic search was carried out in three major electronic databases PubMed, Scopus, and Web of Science targeting articles published between 2015 and 2025. The following Boolean search string was used: ((disasters) OR ("disaster victims") OR ("disaster survivors")) AND ((nurses) OR ("nursing intervention") OR ("nursing care")) AND (("physical recovery") OR ("wound healing") OR ("pain management") OR ("mobility improvement") OR ("quality of life")). Following the application of predefined inclusion and exclusion criteria, three studies were selected for the final synthesis. The findings reveal that nursing interventions such as wound care, pain management, infection control, physical rehabilitation, and health education play a vital role in enhancing the physical recovery of individuals affected by disasters. The success of these interventions is often shaped by factors including timeliness, cultural appropriateness, and interdisciplinary collaboration. In conclusion, this review underscores the essential contribution of nurses in disaster recovery efforts and highlights the need for continued development of evidence-based, culturally sensitive, and standardized nursing practices to optimize health outcomes in post-disaster settings.

Keywords: disaster; disaster victims; nurse; nursing intervention; physical recovery

INTRODUCTION

The physical recovery of disaster victims is a critical component of comprehensive disaster management, encompassing both immediate care and long-term rehabilitation. Disasters whether natural or man-made often result in complex, disabling injuries such as spinal cord injuries, limb amputations, and traumatic brain injuries (Khan & Amatya, 2021; Rathore et al., 2012). Addressing these conditions through effective rehabilitation is essential to improve survivors' quality of life and to support their reintegration into society. Rehabilitation is recognized as a vital aspect of all phases of disaster management: mitigation, preparedness, response, and recovery. However, it remains underprioritized in many disaster plans, particularly in regions with limited healthcare resources and infrastructure (Rathore et al., 2012). This gap can significantly affect outcomes for survivors, with long-term consequences for individuals and communities (Gosney et al., 2011). The delivery of rehabilitation services in disaster-affected areas is often hindered by various challenges, including limited infrastructure, lack of trained personnel, and systemic barriers such as absent referrals and competing health priorities (Carvalho et al., 2019; Gosney et al., 2011). These limitations often delay or prevent victims from receiving the care necessary for optimal recovery.

International organizations such as the World Health Organization (WHO) and the International Society of Physical and Rehabilitation Medicine (ISPRM) play a pivotal role in promoting and supporting rehabilitation in disaster settings. They provide leadership, technical guidance, and advocate for the integration of rehabilitation into global and national disaster preparedness and response strategies (Gosney et al., 2011; Khan & Amatya, 2021). To improve rehabilitation outcomes, several recommendations have been proposed, including integrating rehabilitation services into emergency response plans, ensuring the availability of trained personnel and necessary equipment, and leveraging social capital and community networks to provide psychosocial and logistical support (Carvalho et al., 2019; Rathore et al., 2012; Sadri et al., 2017). In this broader context, nursing interventions play a central role in supporting the physical recovery of disaster victims.

Nurses are often the first point of contact and continue to provide essential care throughout the recovery process delivering trauma care, managing physical mobility, and addressing psychological needs. In prehospital settings, nursing care such as those provided by Immediate Life Support Ambulances can significantly improve clinical outcomes by stabilizing vital signs and providing non-pharmacological pain relief, thereby enhancing trauma severity indices such as the Revised Trauma Score and Shock Index (Mota et al., 2021). Within hospitals or recovery centers, nursing interventions for patients with multiple traumas focus on physical mobility management, including exercise and activity planning, elimination management, and nutritional support crucial elements in preventing complications from immobility and accelerating recovery (Camilo Ferreira et al., 2023). Moreover, psychological support provided by nurses especially those trained in Psychological First Aid (PFA) contributes to improved disaster preparedness, self-efficacy, and perceived competence in handling trauma (Kilic & Simsek, 2019; Mtiraoui et al., 2025). These skills are critical not only for supporting victims' mental health but also for enhancing the overall effectiveness of the disaster response.

Early and sustained nursing interventions are also associated with improved long-term outcomes and quality of life for disaster victims. Studies have shown that factors such as higher education, better baseline health status, and strong social support systems positively influence recovery trajectories (Lee & Kim, 2025). Given the multifaceted and essential role of nurses in disaster recovery, this scoping review aims to explore the impact of nursing interventions on the physical recovery of disaster victims. By systematically mapping the existing evidence, the review will identify effective practices, highlight existing gaps, and inform future disaster response strategies that leverage nursing capacity to improve recovery outcomes.

METODE

This scoping review was prepared with reference to the PRISMA-ScR (2018) guidelines.

Search Strategy and Study Selection

To identify relevant studies exploring the impact of nursing interventions on physical recovery of disaster victims, a comprehensive literature search was conducted across multiple databases. The search strategy incorporated a combination of keywords and controlled vocabulary terms, focusing on disaster, nurse, and physical recovery. The specific search queries used for each database are detailed in Table 1. The search was limited to studies published between 2015 and 2025.

Table 1
 Search Strategy

Database	Query	Result	Date
PubMed	((disasters[MeSH Terms]) OR ("disaster victims"[All Fields]) OR ("disaster survivors"[All Fields])) AND (("nurses"[MeSH Terms]) OR ("nursing intervention"[All Fields]) OR (nursing care[MeSH Terms]))	2,065	20/03/2025
Scopus	(TITLE-ABS-KEY (disasters) OR TITLE-ABS-KEY ("disaster victims") OR TITLE-ABS-KEY ("disaster survivors") AND TITLE-ABS-KEY (nurses) OR TITLE-ABS-KEY ("nursing intervention") OR TITLE-ABS-KEY ("nursing care") AND TITLE-ABS-KEY ("physical recovery") OR TITLE-ABS-KEY ("wound healing") OR TITLE-ABS-KEY ("pain management") OR TITLE-ABS-KEY ("mobility improvement") OR TITLE-ABS-KEY ("quality of life"))	52	20/03/2025
Web of Science	((disasters) OR ("disaster victims") OR ("disaster survivors")) AND ((nurses) OR ("nursing intervention") OR ("nursing care")) AND (("physical recovery") OR ("wound healing") OR ("pain management") OR ("mobility improvement") OR ("quality of life"))	49	20/03/2025

Following the database search, all identified records were imported into a reference management software, and duplicate entries were removed. The remaining records underwent a two-stage screening process. First, titles and abstracts were independently screened by two reviewers to determine their potential relevance based on predefined inclusion and exclusion criteria. Any disagreements between reviewers were resolved through discussion. In the second stage, full-text articles of the studies that passed the initial screening were retrieved. Two reviewers independently assessed each full-text article to ensure it met all the inclusion criteria. Studies were included if they involved article or review, and focused on nursing intervention for disaster victims. Studies were excluded if they not focused on nursing intervention for disaster victims, or if they were published as grey literature. As in the first stage, any disagreements were resolved through discussion.

Data Extraction and Quality Assessment

To gather relevant information from the included studies, a standardized data extraction form was created. Two reviewers independently extracted data from each study using this form, and any discrepancies were resolved through discussion. The extracted data included study, objectives, type of disaster, type of nursing intervention, impact on physical recovery, key findings. The specific extracted data are detailed in Table 2.

Table 2.
 Data Extraction

Study	Objectives	Type of Disaster	Type of Nursing Intervention	Impact on Physical Recovery	Key Findings
(Khan et al., 2015)	Reviewing approaches to medical rehabilitation after natural disasters	Natural Disasters (earthquakes, tsunamis, etc.)	Post-traumatic medical rehabilitation and nursing	Improve mobility, reduce long-term disability	Early rehabilitation intervention is essential for optimal physical recovery.
(Pierre et al., 2024)	Identifying best nursing practices during an earthquake	Earthquakes	Triage, stabilization of vital conditions, patient education, psychosocial support	Prevent complications, maintain basic body functions	Nursing practice has a direct impact on patient safety and stability.

Study	Objectives	Type of Disaster	Type of Nursing Intervention	Impact on Physical Recovery	Key Findings
(Su et al., 2022)	Mapping essential nursing skills in disasters	Natural & Man-Made Disasters	Wound management, emergency care, medical stabilization	Improve wound healing, reduce morbidity	Basic nursing interventions have a major impact on early recovery.

After data extraction, the quality of the included studies was assessed using appropriate tools based on their study design. SANRA (Scale for the Assessment of Narrative Review Articles) (2019) was used to assess the methodological quality of narrative review, and there is no quality assessment tool that is specifically designed for scoping reviews, so we decided not to conduct a quality assessment on the Pierre et al. (2024) and Su et al. (2022). Two reviewers independently assessed the quality of each study, and any disagreements were resolved through discussion. The specific quality assessment are detailed in Table 3.

Table 3
 Quality Assessment for Narrative Review

Study	Justification of the article's importance for the readership	Statement of concrete aims or formulation of questions	Description of the literature search	Referencing	Scientific reasoning	Appropriate presentation of data	Total
(Khan et al., 2015)	2	1	1	1	1	2	8/12

PRISMA Flow Diagram

The PRISMA flow diagram provides a clear visual representation of the study selection process can be seen in Figure 1. The initial search across three databases (PubMed, Scopus, and Web of Science) identified 2166 records. After removing by using filters including publication year limited to 2015–2025 and study type restricted to articles and reviews and removing duplicate records, 149 records remained. During the screening process, 119 records were excluded based on title and abstract, leaving 30 reports for full-text retrieval. Of these, 10 reports were not retrievable, and 17 were further excluded after full-text assessment. Ultimately, 3 studies met all the inclusion criteria and were included in the review.

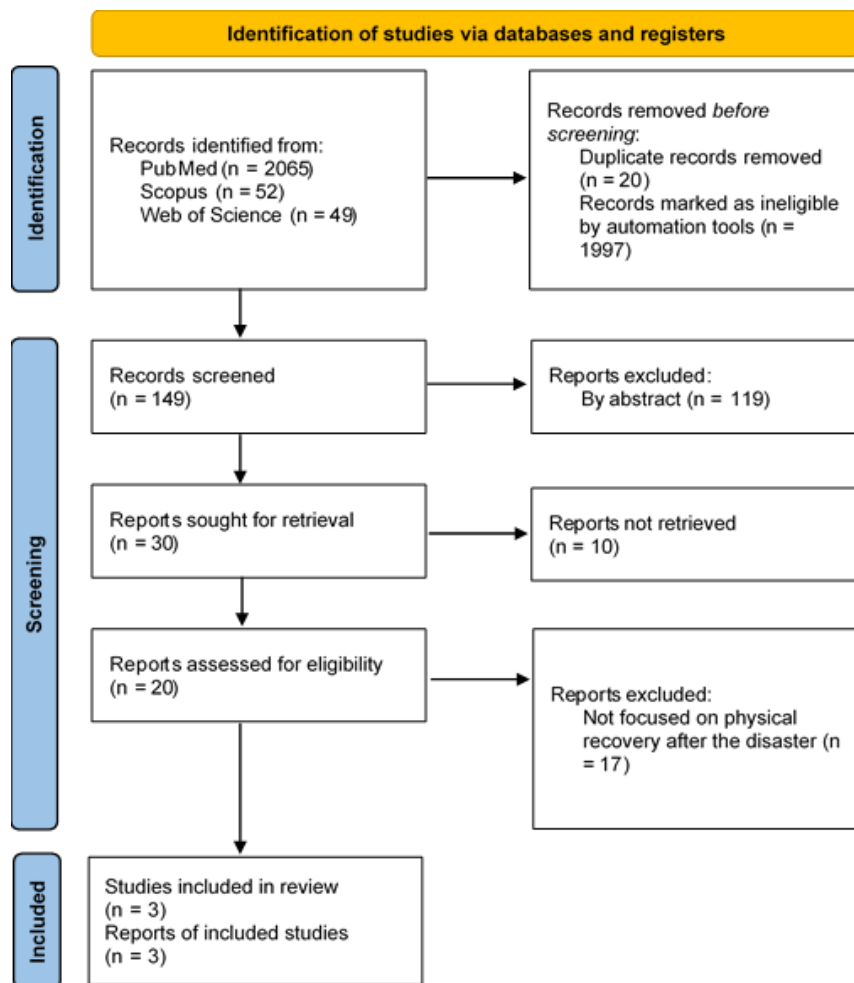


Figure 1 Prisma Flow Diagram

HASIL

A total of three peer-reviewed articles were included in this scoping review after screening based on predefined inclusion criteria. The studies were published between 2015 and 2025 and primarily focused on nursing roles and interventions across various types of disasters including earthquakes, tsunamis, and man-made events.

Study Characteristics

The included studies consisted of one general review of post-disaster medical rehabilitation (Khan et al., 2015), one scoping review on nursing best practices during earthquakes (Pierre et al., 2024), and one scoping review identifying essential nursing skills for both natural and man-made disasters (Su et al., 2022). All studies emphasized the critical role of nurses in the physical recovery of disaster victims.

Nursing Interventions Identified

The studies highlighted a wide range of nursing interventions, which were categorized into three primary domains:

Acute Care Interventions

These included rapid triage, stabilization of vital signs, wound care, and prevention of infection. Such interventions were vital in reducing immediate morbidity and preventing further complications (Pierre et al., 2024; Su et al., 2022).

Rehabilitation and Recovery Support

Post-acute care interventions such as physical rehabilitation, pain management, and support for regaining mobility were emphasized as essential for long-term physical recovery (Khan et al., 2015).

Patient Education and Psychosocial Support

Although not directly physical, patient education on self-care and ongoing support contributed to improved physical outcomes by promoting adherence to care plans and reducing psychological barriers to recovery (Pierre et al., 2024).

Impact on Physical Recovery

Across all studies, nursing interventions were associated with positive physical outcomes, including:

1. Improved mobility and physical functioning
2. Reduced long-term disability
3. Accelerated wound healing
4. Lower rates of secondary complications (e.g., infections, pressure injuries)

These findings suggest that nursing care when integrated effectively into disaster response plays a crucial role in promoting the physical recovery of victims, both in the immediate aftermath and during long-term rehabilitation.

DISCUSSION

The findings of this scoping review highlight the crucial role of nursing interventions in the physical recovery of disaster victims, both in medical rehabilitation and acute trauma management. Additionally, various nursing skills are required to effectively respond to disaster situations, though several challenges can hinder nurses' effectiveness in emergency settings.

Differences and Connections Between Nursing Roles in Medical Rehabilitation and Acute Trauma Management

While nursing roles in medical rehabilitation and acute trauma management focus on different aspects of care, they are interconnected and require complementary skills. In medical rehabilitation, nurses work to improve, maintain, or restore patients' health and independence through long-term care (Gutenbrunner et al., 2021). They collaborate in multidisciplinary teams, integrating therapy, providing emotional support, and educating patients and families (Ehrlich et al., 2022; Long et al., 2002). Conversely, in acute trauma management, nurses are primarily responsible for early stabilization, injury identification, and coordinating care to ensure timely and effective treatment (Umbrell, 2006).

Impact of Nursing Interventions on Physical Recovery

Several studies have demonstrated the crucial role of nursing interventions in facilitating physical recovery across various medical conditions. These interventions are not only supportive but actively contribute to improved patient outcomes by enhancing function, reducing complications, and promoting overall well-being.

In neurological recovery, targeted nursing interventions have proven to be instrumental in restoring function and quality of life for patients suffering from intracranial aneurysms and acute cerebral infarctions (Ma et al., 2024). By implementing structured care plans that focus on neurological rehabilitation, nurses help patients regain control over motor functions and cognitive abilities, ultimately fostering a smoother and faster recovery process.

Similarly, in the field of orthopedics and rheumatology, comprehensive nursing care significantly enhances patient recovery. For elderly patients undergoing orthopedic surgery,

early mobilization facilitated by nursing interventions not only reduces pain but also shortens hospital stays, leading to better overall outcomes (Rong, 2024). Likewise, rehabilitation nursing for rheumatoid arthritis patients plays a key role in preserving joint function and improving daily living standards, allowing individuals to maintain greater independence and mobility (Ma, 2024).

Beyond musculoskeletal recovery, nursing interventions are equally vital in wound healing and infection prevention, particularly for burn patients. By implementing structured care strategies, nurses help accelerate the healing process, minimize infection risks, and enhance patient comfort throughout treatment (Liu et al., 2024; Ren et al., 2021). These efforts ensure that patients not only recover physically but also experience improved overall well-being during their rehabilitation journey.

In stroke recovery, early rehabilitation nursing interventions contribute to significant improvements in motor and swallowing functions, which are essential for regaining independence (Jia et al., 2024; Yu & Wu, 2024). By incorporating individualized care plans, nurses empower stroke patients to restore self-care abilities and improve their quality of life, demonstrating the critical role of nursing in long-term neurological rehabilitation.

Finally, in the postoperative setting, evidence-based nursing interventions following general anesthesia help reduce complications, enhance patient satisfaction, and accelerate recovery times (Zhang et al., 2024). By focusing on pain management, mobility support, and complication prevention, nurses ensure a smoother transition from surgery to full recovery.

Essential Skills in Disaster Nursing

In disaster management, nurses must be equipped with a diverse set of skills to respond swiftly and effectively to emergencies. One of the most critical competencies is casualty triage and emergency management, which allows nurses to assess and prioritize patients based on the severity of their conditions. This skill ensures that resources are allocated efficiently, and that those in critical need receive timely care (Yin et al., 2011).

Another essential skill is observation and monitoring, as continuous assessment of vital signs enables early detection of any deterioration in a patient's condition. Prompt intervention can be life-saving in such dynamic and high-stress environments. Alongside monitoring, nurses must be proficient in basic first aid and medical techniques, including hemostasis, splinting, wound care, and other emergency procedures. These foundational skills are indispensable in stabilizing patients before they receive definitive treatment (Yan et al., 2015; Yin et al., 2011).

Beyond physical care, psychological support is another crucial aspect of nursing in disaster settings. Nurses often serve as the first line of emotional support, not only for victims who may be experiencing trauma but also for their fellow healthcare workers facing immense stress (Yan et al., 2015). Effective communication skills further enhance their ability to coordinate with medical teams, relay critical information, and maintain order in chaotic situations (Al Thobaity et al., 2017).

Additionally, technical expertise and critical thinking skills are vital in high-pressure environments. Nurses must be adept at performing procedures such as IV insertions and catheterization while also making rapid, informed decisions in response to changing circumstances (Yin et al., 2011; Ziapour et al., 2024). However, possessing these skills alone is not enough; preparedness and ongoing training play a key role in maintaining proficiency. Regular disaster drills, scenario-based simulations, and continuous education ensure that nurses remain ready to handle emergencies effectively (Hasan et al., 2021; Labrague et al., 2018; Said & Chiang, 2020).

By mastering these essential competencies, nurses can significantly enhance disaster response efforts, contributing to better patient outcomes and overall crisis management.

Challenges in Disaster Nursing

Despite playing a crucial role in disaster response, nurses often encounter significant challenges that can impede their effectiveness. One major issue is the lack of adequate training and preparedness, particularly in remote and rural areas where access to resources is limited. Many nurses report insufficient disaster response training, leaving them unprepared to handle the complexities of emergency situations (Al Harthi et al., 2020; Brewer et al., 2020).

Ethical and legal dilemmas also add to the burden faced by nurses in disaster scenarios. Difficult decisions regarding resource allocation and triage, coupled with the pressure to uphold professional ethics in extreme conditions, create moral distress and ethical uncertainty (Aliakbari et al., 2015; Fithriyyah et al., 2023; Unsal et al., 2024). Additionally, the intense psychological and emotional strain of disaster response can take a heavy toll. Many nurses experience burnout, emotional exhaustion, and, in some cases, post-traumatic stress disorder (PTSD) due to prolonged exposure to high-stress environments (Kimin et al., 2021; Koksai et al., 2024; Xue et al., 2020).

Another significant challenge is role ambiguity. In chaotic disaster settings, unclear roles and responsibilities can lead to confusion and inefficiencies in response efforts, further complicating the delivery of care (Al Harthi et al., 2020; Scrymgeour et al., 2016). Moreover, resource limitations remain a persistent issue, especially in underserved regions. A shortage of essential medical supplies, personnel, and equipment can severely hinder nurses' ability to provide timely and effective care (Brewer et al., 2020; Brewer et al., 2022).

These challenges highlight the urgent need for improved disaster preparedness programs, clearer role definitions, and greater resource allocation to support nurses in their critical work during disasters.

Limitation

This scoping review has several limitations. First, it includes only three main studies that met the inclusion criteria, limiting the generalizability of the findings. Additionally, the studies did not cover all types of disasters, which may affect the comprehensiveness of the results. As a scoping review, this study did not include a meta-analysis, which limits the ability to draw strong conclusions about the effectiveness of nursing interventions. Geographical and social context may also affect applicability, as the studies were conducted in specific regions with varying healthcare systems and nursing practices. Lastly, there is a possibility of selection bias. Some relevant studies may have been missed due to database limitations, keyword choices, or language restrictions, as only articles in certain languages were included.

Implications and Recommendations

The findings of this review highlight several key areas where nursing effectiveness in disaster situations can be enhanced. One crucial recommendation is the expansion of training and simulation programs. By increasing access to disaster simulation exercises, nurses can develop greater readiness and confidence in managing emergencies, ultimately improving patient outcomes. Another important aspect is the need for stronger psychological support systems. Nurses working in disaster settings often face significant emotional and mental strain, making it essential to implement structured support mechanisms that help them cope with stress and maintain their well-being.

Additionally, improving multidisciplinary coordination is vital for an efficient disaster response. Strengthening collaboration among healthcare professionals, humanitarian organizations, and government agencies can lead to more streamlined efforts and better resource allocation in crisis situations. Equally important is the development of clear policies and guidelines. Establishing well-defined regulations can provide nurses with a reliable framework for decision-making during emergencies, ensuring that their interventions align with best practices and ethical considerations. Overall, nurses play a pivotal role in the physical recovery of disaster victims. However, to maximize their impact, it is essential to address these challenges and implement strategies that enhance their preparedness, support systems, and coordination within disaster response efforts.

CONCLUSION

This scoping review highlights the critical role of nursing interventions in facilitating the physical recovery of disaster victims. The evidence synthesized from the included studies demonstrates that nursing care particularly in the forms of wound management, infection control, pain relief, rehabilitation, and health education has a significant positive impact on the recovery process. However, the number of studies identified was limited, indicating a gap in the current literature and the need for further research in this area. To enhance the effectiveness of nursing interventions in disaster settings, it is essential to develop standardized protocols, strengthen the competencies of nursing personnel, and ensure the cultural relevance of care. Future studies should also aim to evaluate long-term outcomes of these interventions and explore their integration within broader disaster response frameworks.

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