REVIEW ARTICLE

IJPHY

Knowledge, Skills, and Attitude of Disaster Health Management Among Physiotherapists- A Scoping Review

[1]Jyoti Sharma
[*1]Aksh Chahal
[2]Ranjul Rastogi

ABSTRACT

Background: Disaster health management involves trauma, rehabilitation, and functional restoration, which are competencies of physiotherapists. On this, an increase in the incidences of natural and manmade disasters that, on average, are more severe calls for physiotherapists to have specific knowledge, abilities, and philosophy for health emergency intervention. Nevertheless, few studies focus on physiotherapists' current disaster health management activities. In this study, physiotherapists' knowledge, skills, and attitudes in effective disaster health management will be evaluated, and recommendations will be made on the areas that need to be given attention in students learning disaster health management capacities.

Methods: The literature review covered the currently available articles up to 2023 from 2010 focusing on knowledge, skills, and attitudes of physiotherapists in disaster health management and was registered with INPLASY with registration Number 2024110061. An extensive systematic search approach about the Peer-reviewed database like PubMed, Scopus, and PEDro was developed using keywords including "disaster health management", "knowledge", "skills", "attitude", "physiotherapist", and "rehabilitation". Scientific articles and recommendations published in English describing physiotherapists' general features and competencies in disaster situations were included. First, both titles and abstracts were checked for relevance; then, the full text of the articles in question was evaluated as relevant and of good quality. The demographic data and results on the physiotherapists' knowledge, skills, and attitudes regarding disasters were analyzed using a qualitative approach.

Results: Emergency readiness and curricular variation make physiotherapists often ill-prepared for disaster health management. Lack of adequate trauma and triage skills leads to reluctance to develop such skills because of inadequate motivation for disaster training, which is believed not to be very essential in daily practice.

Conclusion: Improved, structured disaster drills for physiotherapists, such as disaster preparedness and trauma scenarios, could improve preparation. This study posited that integrating disaster management in physiotherapists' routine education and promoting proactive disposition through simulations would enhance disaster preparedness and response and improve patient outcomes in disaster health management.

Keywords: Disaster Health Management, Knowledge, Skills, Attitude, Physiotherapist, Rehabilitation.

Received 13th November 2024, accepted 11th March 2025, published 31st March 2025

10.15621/ijphy/2025/v12i1s/1614

www.ijphy.com

[1]Professor, Department of Physiotherapy, School of Allied Health Sciences, Galgotias University, Gautam Buddha Nagar, Uttar Pradesh-203201, India.
[2]Professor, School of Business, School of Business, Galgotias University, Gautam Buddha Nagar, Uttar Pradesh-203201, India.

CORRESPONDING AUTHOR

[*1]Aksh Chahal

Department of Physiotherapy, School of Allied Health Sciences, Galgotias University, Gautam Buddha Nagar, Uttar Pradesh-203201, India.
Email: aksh.chahal@galgotiasuniversity.edu.in

INTRODUCTION

The incidence of disasters has increased in the past decade in India and worldwide. These disasters cause a significant number of fatalities as well as a significant rise in the number of people in need of rehabilitation [1].

As natural and man-made catastrophes have become more frequent and severe globally in recent years, disaster health management (DHM) has attracted much attention. Disaster management initiatives aim to minimize or prevent possible losses due to hazards, provide catastrophe victims with timely and appropriate aid, and accomplish quick and efficient recovery [2].

The Indian subcontinent is prone to heightened seismic activity, with active volcanoes and earthquakes, some of which have the potential to produce tsunamis. People became aware of the absence of an early warning system for the tsunami after the 2004 Indian Ocean tsunami [3–5]. Less economically developed countries are more likely to experience disasters and deaths as a result of their inability to plan for and respond effectively to the numerous disasters that confront them, a lack of infrastructure and emergency services, high population densities in unplanned settlements, and low economic capacities to withstand the effects. There is a big gap between what is known and what is done in practice [3,4,6] .

Role of Physiotherapists in DHM

Physical therapists and our rehabilitation colleagues are now emerging as a core part of the humanitarian response on an individual, organizational, and global level. They are involved in the entire spectrum of the disaster continuum, from disaster risk reduction to immediate response, and throughout the process of rehabilitation and rebuilding [7–12]. As integral healthcare workforce members, physiotherapists are pivotal in managing disaster-related injuries and facilitating rehabilitation. Yet the factors shaping their capacity to respond to and manage disasters effectively remain underexplored [13]. Understanding the factors affecting disaster health management for physiotherapists can enhance their preparedness and effectiveness in disaster response's rehabilitation and recovery phases, helping individuals regain mobility and function after traumatic events.

Disaster Knowledge

Disaster Knowledge (DK) plays a critical role in assuring the availability and accessibility of accurate and reliable disaster-related information when required, as well as effective lesson learning [3,6,14]. Despite this, knowledge of disaster management appears fragmented, emphasizing a perceived gap in information coordination and sharing [3,6,14,15]. Knowledge is defined as "the state or fact of knowing something with a significant level of familiarity through association, contact, or experience." There are two types of knowledge: explicit knowledge and tacit knowledge. Codifiable knowledge found in non-human repositories such as databases, publications, and organizational manuals is known as explicit knowledge. Tacit knowledge is information from personal experience that human behavior demonstrates through judgments, attitudes, viewpoints, dedications, and motivation [15,16]. Disaster practitioners' knowledge and experiences remain in the individual or institutional realm. As a result, catastrophe knowledge elements can have an impact on disaster management processes and outcomes, both directly and indirectly.

Tec savvy includes any instrument, methodology, product, procedure, or method for disaster management. Warning systems, communication systems, and structural safeguards. These are used to convey information and inform individuals about how to evacuate, locate, and move [17]. Effective technology will not benefit unless the people who utilize it possess the necessary competencies and expertise. As we live in a technological age, there is no better approach to managing disasters than to use ICT (information and communication technology), as communication is the most difficult aspect of it. The Internet of Things (IoT), a fast-growing platform, can be used in the best possible ways for the disaster preparedness and recovery phases [18]. Telehealth, electronic health records (EHRs), and mobile health applications can enhance communication, coordination, and continuity of care during disasters. Leveraging technology can facilitate remote consultations, monitor patient progress, and streamline data sharing among healthcare providers. This technological integration can be particularly beneficial in resource-limited settings where access to healthcare professionals may be challenging [19,20].

Disaster management practitioners should enhance their skills and increase their level of knowledge, which needs investments in systems, databases, and network architecture, in order to build a culture of learning from prior lessons and the adoption of best practices [4]. UNESCO claims that although there is a wealth of information regarding risk and vulnerability to hazards, its full potential for empowerment or protection at the local, national, regional, and global levels has not yet been realized [21,22]. Integrating technology into disaster health management is another factor that can significantly impact the effectiveness of physiotherapists.

Disaster Skills

Practical disaster skills (DS) for physiotherapists begin with adequate preparedness and training. Disaster preparedness involves developing specific disaster response plans and protocols that include physiotherapy services [23–25]. Training programs should be comprehensive, encompassing not only technical skills but also the ability to operate in high-stress environments and under resource constraints [26–28]. Furthermore, simulation-based training can significantly improve the readiness of physiotherapists by providing realistic scenarios that mimic actual disaster conditions [29–31].

Resource availability is a significant factor affecting disaster health management for physiotherapists. In disaster

scenarios, resources such as medical supplies, equipment, and personnel are often limited. Physiotherapists must be adaptable and resourceful, using available materials creatively to deliver effective care. Effective contingency plans and resource allocation strategies in place can mitigate the impact of shortages and ensure continuity of care [32,33].

Interprofessional collaboration is crucial in disaster health management. To offer comprehensive care, physiotherapists must collaborate with other medical specialists such as physicians, nurses, occupational therapists, and emergency medical technicians [34]. Effective communication and teamwork are essential to ensure seamless care transitions and optimize patient outcomes [35,36]. Collaborative practice not only improves the quality of care but also enhances the overall efficiency of disaster response efforts [37–41].

Disaster Attitude

The willingness and effectiveness of healthcare professionals to participate in disaster response are greatly influenced by their disaster attitude (DA). Higher engagement, resilience, and a stronger sense of preparedness are all associated with positive attitudes about disaster response among healthcare professionals, all of which are critical in high-pressure situations [42–44]. Positive attitudes toward disaster management increase the likelihood that physiotherapists will volunteer for disaster response roles, pursue training, and modify their methods to accommodate the demands of emergency situations [45,46]. Working in disaster environments can be emotionally and mentally challenging, often leading to burnout and compassion fatigue. Building psychological resilience through training, peer support, and self-care practices is essential for maintaining the well-being and effectiveness of physiotherapists [47–50].

Physiotherapists working in disaster health management must be culturally competent since they may come into contact with people from various cultural backgrounds. Recognizing and honoring cultural differences can improve patient outcomes and increase therapy efficacy [51,52]. Cultural competence training should be an integral part of disaster preparedness programs for physiotherapists. This training can help physiotherapists provide culturally sensitive care, crucial in diverse communities affected by disasters [52–55]. Various factors, including prior experience in crisis situations, availability of pertinent training, and organizational support, can influence physiotherapists' attitudes. These factors can either increase reluctance or improve preparedness [56–58]. Organizational support and access to mental health resources are also vital in promoting resilience among healthcare professionals [59–61].

Research on physiotherapists' views toward disaster health management is scarce, despite the apparent necessity for them in disaster situations. There is a mixed view, according to studies; some physiotherapists are driven to help with disaster response because of their professional dedication and selflessness, while others feel unprepared and point to obstacles like a lack of training, unclear roles, and worries about their safety [62,63].

This paper seeks to investigate the diverse knowledge, skills and attitude factors influencing physiotherapists' disaster health management capabilities, to inform strategies for training, preparedness, and response. Various key factors of DHM on individual, institutional, and community levels include disaster preparedness, response, and recovery knowledge; disaster skills include technological, operational, training, interprofessional collaboration, and resource availability; and disaster attitude involves psychological resilience, motivation, cultural competence, spirituality, etc.

METHODOLOGY

Search Strategy

The literature review covered the currently available articles up to 2023 from 2010 focusing on knowledge, skills, and attitudes of physiotherapists in disaster health management was registered with INPLASY with registration Number 2024110061. An extensive systematic search approach about the peer-reviewed online database like PubMed, Scopus, and PEDro was developed using Medical Subject Headings (MeSH) keywords including "Disaster Health Management" AND "Knowledge" AND "Skills" AND "Attitude" AND "Physiotherapist" AND "Rehabilitation" (All Fields).

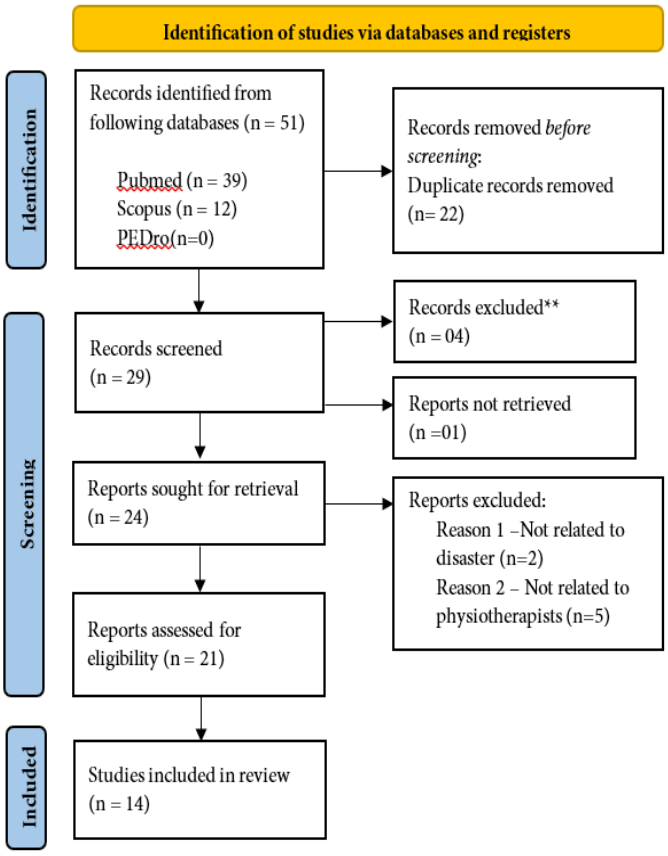
Eligibility Criteria

Full-text articles published in English that describe the knowledge, skills, and attitudes of physiotherapists in disaster health management were included post-screening of the abstracts. First, both titles and abstracts were checked for relevance; then, the full text of the articles in question, evaluated as relevant and of good quality, were included as per PRISMA guidelines shown in Figure 1.

Data management

The selection of studies occurred in two phases. Initially, two independent reviewers screened the titles and abstract records. Full-text articles were obtained for eligible records. In the second phase, two independent reviewers screened full-text articles. A third reviewer was involved if there was a disagreement on whether the record should be included at any stage.

Figure 1: PRISMA checklist for articles selection of knowledge, skills, and attitudes factors for disaster health management for physiotherapists.



RESULTS

The total number of articles extracted was 51, all written in English. Two independent reviewers found 51 papers relevant to the research issue. After removing duplicates, 29 papers remained, and irrelevant articles (those not relevant to physiotherapists or disaster management) were eliminated from this scoping review. The final qualitative synthesis contained only six (n = 14) publications. Figure 1 depicts the review process regarding publications that were screened, excluded, and included in the review.

The review team charted the data under the following headings: author(s), year of publication, nation, title, methodology, and significant outcomes or major findings after extracting the data in a Microsoft® Excel program. Table 1 summarises the studies in this review and emphasizes the significance of disaster health management elements for physiotherapists.

Table 1. Overview of the articles included in the study highlighting the knowledge, skills, and attitudes factors for disaster health management for physiotherapists.

S No.	Author Name	Country	Title	Methodology	Result
1.	Saeed Shahabi et al.2021[64]	Iran	Stewardship of physiotherapy services in Iran: common pitfalls and policy solutions	This study took a qualitative approach, conducting semi-structured interviews with key stakeholders, including health planners, policymakers, university professors, rehabilitation managers, and physiotherapists. Interviews were performed via the phone, online, and in person.	Participants identified several pitfalls in the stewardship of physiotherapy services across six dimensions: **strategy formulation, inter-sectoral collaboration, governance** and **accountability, health system design, policy and regulation, and intelligence generation.** They also suggested policy options and solutions to address these deficiencies and improve the stewardship of PT services.
2.	Claudia Cristina de Aguiar Pereira et al.2023[65]	Brazil	Development of an Index to Assess COVID-19 Hospital Care Installed Capacity in the 450 Brazilian Health Regions	The longitudinal data from the National Register of Health Facilities (CNES) on the available resources required to care for COVID-19 patients in inpatient facilities (public or private) from January to December 2020. Health professionals (certified nursing assistants, nurses, physical therapists, and doctors) are among the resources evaluated, as are hospital beds (clinical, intermediate, and intensive care units) and medical equipment (computed tomography scanners, defibrillators, electrocardiograph monitors, ventilators, and resuscitators). In addition to doing a descriptive analysis of absolute and relative data (per 10,000 users), a synthetic indicator known as the Installed Capacity Index (ICI) was created using the multivariate principal component analysis technique to assess hospital capacity. The indicator was further divided into value ranges to comprehend its progression better.	There was an **increase in all selected indicators** between January and December 2020. It was possible to observe differences between the Northeast and North regions and the country's other regions; most Health Regions presented low ICI. The ICI increased between the beginning and the end of 2020, but this evolution differed among Health Regions. The average increase in the ICI was more evident in the groups already with considerably high baseline capacity in January 2020.

3.	M. Kristi Henzel et al.2020[66]	Brazil	Initial assessment and management of respiratory infections in persons with spinal cord injuries and disorders in the COVID-19 era	As the COVID-19 epidemic progresses, emergency department (ED) personnel will face a more significant caseload, including people with unique medical needs such as spinal cord injuries and disorders (SCI/D). This review discusses how people with SCI/D are more likely to die from respiratory infections, how to recognize respiratory infections such as COVID-19, and how to manage COVID-19 complications in this population.	**Nebulized bronchodilators, chest percussion/ drainage procedures, manually aided coughing techniques, nasotracheal suctioning, and mechanical insufflation-insufflation** are all methods for managing secretions. ED personnel, particularly respiratory therapists, should know the significant comorbidities associated with SCI/D and the specialized **secretion management protocols and techniques** for optimum medical care and **respiratory failure avoidance**. Importantly, precautions should be adopted to reduce the risk of COVID-19 transmission during aerosol-generating activities.
4.	Junji Hatakeyama, Kensuke Nakamura et al.2024 [67]	Multiple countries	Intensive care unit follow-up clinic activities: a scoping review	This study conducted a scoping review of ICU follow-up clinic methodologies by examining articles from the CENTRAL, MEDLINE, and CINAHL databases, covering literature up to December 2022. The review analyzed data on clinic location, operating days, lead professions, patient eligibility, timing of follow-up, and assessment tools used in ICU follow-up clinics across various studies.	The review found that ICU follow-up clinic practices varied by country and region, with differences in clinic names, leadership roles (primarily physician or nurse-led), and involvement of other professionals, such as pharmacists, physical therapists, neuropsychologists, and social workers. Clinics typically targeted critically ill patients, with the first follow-up usually scheduled 1–3 months post-discharge. Assessments included physical function, cognitive function, mental health, and health-related quality of life. The study concluded that a standardized format for ICU follow-up clinics is needed to **optimize patient outcomes based on different categories of critically ill patients.**
5.	Jaason M. Geerts et al.2021 [68]	Multiple countries	Guidance for Health Care Leaders During the Recovery Stage of the COVID-19 Pandemic A Consensus Statement	The study conducted a literature review using PubMed, MEDLINE, and Embase, identifying 10,910 articles related to leadership in emergency, crisis, disaster, pandemic, COVID-19, or public health contexts from 2000 to 2021. A modified Delphi method with six rounds was used to develop a leadership framework, involving 32 expert coauthors from 17 countries to create and validate a set of leadership imperatives. The consensus-building process followed the Standards for Quality Improvement Reporting Excellence guidelines.	The study produced a framework with 10 leadership imperatives to guide health and public health leaders during the COVID-19 post-emergency stage. These imperatives include **staff acknowledgment, well-being, context understanding, future emergency preparedness, priority reassessment, team performance, service backlog management, sustained learning, effective communication, and providing safety information.** These imperatives are intended to help leaders address health system needs and inequalities and to improve emergency preparedness and care quality.
6.	Cara L. Brown et al.2024 [69]	Canada	Primary care occupational, physical, and respiratory therapy role adaptation in the first year of the COVID-19 pandemic	This longitudinal interpretative descriptive study was conducted with a purposive sample of occupational, physical, and respiratory therapists in primary care from Manitoba and Ontario, Canada. Participants recorded at least 10 semi-structured audio diaries over 12 weeks (April to October 2020) and participated in two follow-up semi-structured interviews (December 2020 and April 2021). Data were analyzed iteratively through individual summaries, coding with inductive and pre-determined codes, and an immersion/crystallization process to identify themes related to role adaptation.	The study used the metaphor "Role Adaptation Snakes and Ladders" to describe the therapists' adaptation process through three phases: **Disorienting**, **Coping and Waiting, and Adapting**. In the Adapting phase, therapists found innovative ways to deliver essential services despite challenges (snakes) and supports (ladders) from their personal, meso, and macro-professional contexts. Each therapist experienced a unique adaptation journey influenced by these factors.
7.	Dawn A. Morley et al.2022 [70]	England	The changing role of Advanced Clinical Practitioners working with older people during the COVID-19 pandemic: A qualitative research study	This qualitative study involved 23 Advanced Clinical Practitioners (ACPs) from various health backgrounds (nurses, physiotherapists, paramedics, and a pharmacist) across England. Participants were recruited through social media networks using a snowball sampling technique. Depending on their preference, participants were interviewed individually or in three focus groups via Zoom. Audio recordings were transcribed and analyzed using NVivo 12 Pro software, with an inductive approach to thematic analysis. Twenty-seven codes were identified and grouped into five themes, with four discussed in this paper.	The study found that ACPs adapted their skills to meet urgent clinical needs during the pandemic, particularly in caring for older people with frailty. Their expertise allowed them to take on **management and leadership roles, transcending traditional professional boundaries.** Challenges included a lack of awareness of the ACP role and tension between ACPs and physicians. The study highlighted the potential of ACPs to provide **sustainable, personalized care** but noted concerns that their expanded roles might be reduced post-pandemic.

8.	Josef S. Otto et al.2022[71]	United States	Therapists in the Uniformed Services: Improving Care in Emergency Response Medical Missions	This article provides a clinical perspective based on the experiences of a physical therapist, occupational therapist, and speech-language pathologist from the US Public Health Service Commissioned Corps who were deployed with an augmentation team to assist an overwhelmed hospital treating COVID-19 patients. The rehabilitation team conducted 246 evaluation and treatment encounters over 12 days, beginning patient care within 24 hours of arrival on-site.	The rehabilitation team's interventions **improved patient mobility, independence in daily activities, and safe tolerance of less restrictive diets without aspiration**. These outcomes contributed to expedited **safe discharges, reduced hospital length of stay, and increased inpatient admission capacity.** The deployment highlighted the importance of integrating rehabilitation services in COVID-19 care to enhance recovery and patient outcomes. The study emphasizes the need for future emergency and public health response teams to include rehabilitation specialties as essential members.
9.	Josef S. Otto et al.2022[71]	Haiti	Physiotherapy in Haiti: A qualitative study exploring local clinicians' perspectives	A qualitative exploratory, descriptive design. This study was divided into two phases: (1) a survey to identify potential interview participants and preliminary themes to be investigated in follow-up interviews, and (2) a series of semi-structured qualitative interviews. We conducted a theme analysis of the interview transcripts.	One rehabilitation technician and four physiotherapists took part in the interviews. The following six interconnected themes surfaced, each of which had a systemic effect on Haiti's physiotherapy and rehabilitation service development: (1) physiotherapy as a new field, (2) government financing and service planning, (3) accessibility to physiotherapy services, (4) doctor-patient relationships, (5) international cooperation, and (6) Haitian physiotherapy associations.
10	Elizabeth Dean et al.2022 [73]	United States	Translating COVID-19 Evidence to Maximize Physical Therapists' Impact and Public Health Response	This article provides a descriptive overview and analysis of the role of the physical therapy profession in the context of the COVID-19 pandemic. It draws on historical insights and evidence-based practices related to non-invasive interventions commonly used by physical therapists, particularly in intensive care units and public health efforts for managing non-communicable diseases (NCDs).	The article highlights the critical role of physical therapists across the COVID-19 care continuum. In severe cases, physical therapists play an essential role in **managing acute respiratory distress syndrome through body positioning and mobilization techniques to improve respiratory function, reduce complications, and enhance long-term outcomes.** Additionally, physical therapists are encouraged to address NCDs that increase COVID-19 mortality risk by implementing or supporting evidence-based interventions in health education, such as **promoting physical activity, smoking cessation, healthy diet, and weight management.** COVID-19 represents an opportunity for the physical therapy profession to reinforce its role in acute and public health settings.
11.	Chidiebele P Ojukwu et al.2021 [74]	Nigeria	Knowledge, practices and perceived barriers of physiotherapists involved in disaster management: a cross-sectional survey of Nigeria-based and trained physiotherapists	This study recruited 150 Nigeria-based and trained physiotherapists who completed a questionnaire to assess their knowledge, practices, and perceived barriers regarding the role of physiotherapists in disaster management (DM). The questionnaire investigated their involvement in various stages of DM, their understanding of their role, and the challenges they face.	The study found that while physiotherapists had moderate knowledge of their role in DM, their involvement in specific DM-related activities was low. Significant barriers identified included the **lack of government policies for integrating physiotherapists** into DM (90%) and the absence of specialty clinical practice areas in DM (89.3%). Respondents suggested creating **awareness** about the role of physiotherapists in DM (91.3%), providing continuous education on DM (90.6%), and including **DM training in physiotherapy curricula** (90.0%) as solutions to improve their involvement.
12.	Kristy Wittmeier et al.2020 [75]	Multiple countries	Operational Considerations for Physical Therapy During COVID-19: A Rapid Review	Over four weeks (April–May 2020), a quick evaluation was conducted to compile operational concerns unique to physical therapy for hospital-based leadership teams during the COVID-19 pandemic. The review team comprised a member of the leadership team for physical therapy, a health librarian, and three clinician-researchers with backgrounds in physical therapy. Twenty of the 303 articles found in the first search were included in the final evaluation, while 80 were kept for full-text screening.	The review identified five major areas of operational issues for physical therapy during the COVID-19 pandemic: (1) **organizational activities, (2) staffing considerations, (3) physical therapist duties, (4) physical resources, and (5) other factors**. The review also compiled pertinent data from physical therapists' experiences in crisis circumstances.

13.	Marcalee Alexander et al.2019 [76]	Multiple countries, including Europe, North America, and Asia.	Bell weather for climate change and disability: educational needs of rehabilitation professionals regarding disaster management and spinal cord injuries	This was a cross-sectional study done in 2019. An online survey was issued to an international cohort of rehabilitation specialists who work with people who have suffered spinal cord injuries (SCI). The survey was distributed through various international healthcare organizations. Microsoft Excel 2016 was used to perform descriptive statistics and chi-square tests for association. .	Of 125 responders, 50% came from Europe, 18% from North America, and 18% from Asia. Most (74%) were physicians, whereas 13% were physical therapists. 57.6% of respondents said climate change impacted their clients' health and well-being. North American respondents were less likely to report the influence of climate change on their patients' health than those from Asia or Europe ($p < 0.01$). Furthermore, 82.5% of respondents believed that professionals should be concerned about sustainability, and 85.5% wanted to learn more about the subject.
14.	Peter Horrocks et al.2019 [77]	South Australia	Paramedic Disaster Health Management Competencies: A Scoping Review	The methodology used in this paper to identify existing paramedic disaster response competency domains was adapted from the guidance for systematic scoping reviews, which was developed by members of the Joanna Briggs Institute (JBI; Adelaide, South Australia) and members of five Joanna Briggs Collaborating Centres.	The literature search yielded six publications for review that discussed paramedic disaster response competency domains. The findings were divided into two categories: (1) General Core Competency Domains, which are appropriate for all paramedics (both Advanced Life Support [ALS] and Basic Life Support [BLS]) who respond to any disaster or major incident, and (2) Specialist Core Competencies, which are deemed necessary competencies for responding to specific types of disasters. Further research revealed that the literature has three distinct types of competency domains: (1) Core Competencies, (2) Technical/Clinical Competencies, and (3) Specialist Technical/Clinical Competencies.

DISCUSSION

Different regions and institutions seem to have different levels of knowledge of physiotherapists' understanding of disaster health management. Many possess rudimentary information but are not well-versed in advanced disaster management standards, such as mental health assistance, acute treatment for injuries sustained during disasters, and triage processes. Standardized training is needed, especially in catastrophe situations where physiotherapists play a critical role in respiratory treatment and trauma rehabilitation [35,78].

Emergency patient assessment, mobility and rehabilitation support, and respiratory treatment are essential skills for physiotherapists in crisis scenarios. There is a clear skills gap when it comes to using these competencies in the high-pressure, resource-constrained environments that are typical of crises. According to studies, physiotherapists frequently do not have the chance to practice these techniques in actual or simulated catastrophe situations, which may limit their efficacy in responding to actual disasters [74,75,77,79].

As a valuable extension of their job in patient care, physiotherapists typically have a favorable attitude toward taking part in disaster health management. On the other hand, perceptions of confidence and readiness vary. People with previous training or experience responding to disasters report feeling more prepared and confident. Lack of training opportunities, ambiguous professional positions in catastrophe situations, and a lack of institutional support are frequently obstacles to engagement [31,80–82].

Like other allied health specialists, physiotherapists are essential but frequently overlooked in disaster management. Physiotherapists are less commonly included in disaster response plans than other professions like emergency medicine and nursing. This disparity emphasizes the necessity of a more comprehensive multidisciplinary strategy that specifically incorporates physiotherapists into frameworks for emergency preparedness and response [74,79,83]. The analysis emphasizes the need for physiotherapist-specific disaster management training that covers theoretical knowledge and real-world skill development. Training programs should ideally include workshops, simulations, and multidisciplinary disaster drills to increase physiotherapists' confidence and competence in actual catastrophe scenarios. Furthermore, incorporating disaster health management into physiotherapy programs' curricula could guarantee that recent graduates have a foundational understanding of the field [84–86].

Intrinsic urge to assist in times of catastrophe is often the driving force behind positive attitudes regarding disaster involvement. However, physiotherapists' willingness to participate may be impacted by attitude barriers, such as worries about personal safety and anxiety about the unpredictability of disaster work. Participation rates may increase if these issues are resolved with organized support networks, precise job descriptions, and guarantees of safety procedures [87]. Among the contributing factors include inadequate support from healthcare systems, safety concerns, and a lack of formal training, which are the obstacles that may reduce physiotherapists' readiness and desire to assist with disaster response if they are not removed [88–91]. According to policies, physiotherapists should be included in disaster preparedness and response teams. Physiotherapists play a critical role in respiratory treatment, rehabilitation, and mobility restoration; disaster planning frameworks, especially in high-demand scenarios like mass casualties or complicated calamities where patient recovery takes longer than just life-saving measures that involve them in regional and national disaster response teams [12,43,45,66,92].

Physiotherapists in various areas would be guaranteed to meet a predetermined standard of knowledge and abilities if a standardized competency framework for disaster health management was established. Such frameworks should be established by professional bodies in cooperation with disaster health organizations to specify the capabilities that are required, direct training programs, and encourage uniform disaster response standards [77,93,94]. Physiotherapists can improve their integration in disaster response by learning more about their roles in disaster teams from training with other medical professionals, including social workers, nurses, and emergency medical technicians [95,96]. Effective disaster management requires teamwork, role clarity, and communication skills, all of which would be fostered by such cross-disciplinary training programs [76,97].

CONCLUSION

Although fundamental, physiotherapists' understanding of disaster health management varies greatly depending on their region, level of education, and the resources at their disposal. Most physiotherapists are knowledgeable about basic first aid and rehabilitation. Still, they typically lack advanced skills in areas like disaster triage protocols, crisis respiratory care, and mental health support during disasters. With little access to practical training or disaster simulations to hone critical abilities, the assessment identifies a serious skills gap in real-world disaster response. Physiotherapists' attitudes regarding disaster health management are largely favorable. However, perceived obstacles—like worries about safety, insecurity, and unclear duties in catastrophe situations—can make them less prepared and less inclined to actively engage in disaster management.

REFERENCES

[1] Doğan H, Akbayrak T. The Roles and Duties of Physiotherapists on Women's Health During Disaster Period. TOGÜ Sağlık Bilim Derg. 2024;4(1):34–44.

[2] Seneviratne K, Baldry D, Pathirage C. Disaster knowledge factors in managing disasters successfully. Int J Strateg Prop Manag. 2010;14(4):376–90.

[3] Seneviratne TKK, Amaratunga D, Haigh R. Disaster knowledge factors: benefits and challenges. In: International Conference on Building Resilience: Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities, 19th - 21st July [Internet]. 2011. Available from: http://eprints.hud.ac.uk/id/eprint/22524/

[4] Moe TL, Pathranarakul P. An integrated approach to natural disaster management: Public project management and its critical success factors. Disaster Prev Manag An Int J. 2006;15(3):396–413.

[5] Camilleri DH. Tsunami construction risks in the Mediterranean - Outlining Malta's scenario. Disaster Prev Manag An Int J. 2006;15(1):146–62.

[6] Pathirage C, Seneviratne K, Amaratunga D, Haigh R. Managing disaster knowledge: Identification of knowledge factors and challenges. Int J Disaster Resil Built Environ. 2012;3(3):237–52.

[7] Norton, I., von Schreeb, J., Aitken, P., Herard, P., & Lajolo C. Technical criteria for classification and minimum standards for Foreign Medical Teams (FMTs). In: World health organisation [Internet]. 2013. p. 27. Available from: http://www.who.int/hac/global_health_cluster/fmt_guidelines_september2013.pdf?ua=1

[8] Gosney J, Reinhardt JD, Haig AJ, Li J. Developing post-disaster physical rehabilitation: Role of the World Health Organization Liaison Sub-Committee on Rehabilitation Disaster Relief of the International Society of Physical and Rehabilitation Medicine. J Rehabil Med. 2011;43(11):965–8.

[9] Farroq A., Rathore, Gosney , Jan D.Reinhardt, AndrewJ.Haig JAD. Medical Rehabilitation After Natural Disasters,Why, When,.pdf. Arch Phys Med Rehabil. 2012;93.

[10] Reinhardt JD, Li J, Gosney J, Rathore FA, Haig AJ, Marx M et al. GHA. Disability and health-related rehabilitation in international disaster relief. 2011;4.

[11] Charter H. The Sphere Project. Humanitarian Charter and Minimum Standards in Humanitarian Response. 2011. 1–49 p.

[12] WCPT. The role of physical therapists in disaster management. World Confed Phys Ther Rep [Internet]. 2016;(March):1–78. Available from: https://www.wcpt.org/sites/wcpt.org/files/files/resources/reports/WCPT_DisasterManagementReport_FINAL_March2016.pdf

[13] Connor SB. Factors associated with the intention of health care personnel to respond to a disaster. Prehosp Disaster Med. 2014;29(6):555–60.

[14] Seneviratne K, Baldry D PC. Disaster knowledge factors in managing disasters successfully. Int J Strateg Prop Manag. 2010;14(4):376–90.

[15] Mohanty S, Panda B, Karelia H, Issar R. Knowledge management in disaster risk reduction: the Indian approach. Disaster Management Division, Ministry of Home Affairs, Government of India. 2006.

[16] Li M, Gao F. Why Nonaka highlights Tacit Knowledge: A Critical Review. J Knowl Manag. 2003;7(4):6–14.

[17] Oloruntoba R. A Wave of Destruction and the Waves of Relief: Issues, Challenges and Strategies. In: Disaster Prevention and Management: An International Journal. Emerald Group Publishing Limited; 2005. p. 506–21.

[18] Zafar U, Shah MA, Wahid A, Akhunzada A, Arif S. Exploring Iot applications for disaster management: Identifying key factors and proposing future directions. In: Innovations in Communication and Computing. 2019. p. 291–309.

[19] Patel P, Kerzner M, Reed JB, Sullivan PS, El-Sadr WM. Public Health Implications of adapting HIV pre-exposure Prophylaxis Programs for virtual service delivery in the context of the COVID-19 pandemic: systematic review. JMIR Public Heal Surveill.

2022;8(6):e37479.
[20] Jadhav OP, Choure V. Telemedicine:Transforming Healthcare Delivery in the Digital Age. Int J Acad Med Pharm. 2024;6(3):565–71.
[21] Kumpulainen S. Vulnerability concepts in hazard and risk assessment. Spec Pap Surv Finl. 2006;42:65.
[22] Gaillard J-C, Mercer J. From knowledge to action: Bridging gaps in disaster risk reduction. Prog Hum Geogr. 2013;37(1):93–114.
[23] Konoorayar V. Disasters: Global response to the challenges. In: AALCO Quarterly Bulletin, Forthcoming [Internet]. 2006. Available from: https://ssrn.com/abstract=991085
[24] Weinstein ES, Weinstein B. Policy issues in disaster preparedness and response. Ciottone's Disaster Med. 2016;215–21.
[25] Wuthisuthimethawee P, Tin D. Disaster Response in Asia. In: Ciottone's Disaster Medicine. 2024. p. 98–101.
[26] Thobaity A Al, Williams B, Plummer V. A new scale for disaster nursing core competencies : Development and psychometric testing. Australas Emerg Nurs J. 2016;(19):11–9.
[27] Camarero J, Iglesias CA. Disasters2. 0: Application of Web 2.0 Technologies in Emergency Situations. Int J Emerg Manag. 2009;6(3–4):261–79.
[28] Phua SZ, Hofmeister M, Tsai Y-K, Peppard O, Lee KF, Courtney S, et al. Fostering urban resilience and accessibility in cities: A dynamic knowledge graph approach. Sustain Cities Soc. 2024;113(105708):1–18.
[29] Mulligan H, Smith CM, Ferdinand S. How did the Canterbury earthquakes affect physiotherapists and physiotherapy services? A qualitative study. Physiother Res Int. 2015;20(1):60–8.
[30] Smith, K., Fearnley, C.J., Dixon, D., Bird, D.K., & Kelman I. Environmental hazards: Assessing Risk and Reducing disaster. 7th Ed. Routledge; 2023. 660 p.
[31] Moheimani A, Sheikh R, Hosseini SMH, Sana SS. Assessing the preparedness of hospitals facing disasters using the rough set theory: guidelines for more preparedness to cope with the COVID-19. Int J Syst Sci Oper Logist. 2022;9(3):339–54.
[32] Mosadeghrad AM, Afshari M, Isfahani P, Ezzati F, Abbasi M, Farahani SA, et al. Strategies to Strengthen the Resilience of Primary Health Care in the COVID-19 Pandemic: A Scoping Review. BMC Health Serv Res. 2024;24(1):841.
[33] Wilson WL. Pandemic Contingency Planning in Healthcare: A Qualitative Single Case Study (Doctoral dissertation). Northcentral University; 2022.
[34] Campagna V, Nelson SA, Krsnak J. Improving Care Transitions to Drive Patient Outcomes: The Triple Aim Meets the Four Pillars. Prof Case Manag. 2019;24(6):297–305.
[35] Riley E, Jones JL. Person-Centered Care. In: Quality and Safety Education for Nurses: Core Competencies for Nursing Leadership and Care Management. 3rd Ed. Springer Publishing Company; 2022.
[36] Hardy D. Developing a Clinical Practice Guideline for Improving Communication During Transitions of Care (Dissertation). Walden University; 2019.
[37] Sutton J, Tierney K. Disaster Preparedness: Concepts, Guidance, and Research. Vol. 3, Colorado: University of Colorado. 2006.
[38] Olugbenga T, Owolabi S, Ekechi CO. Communication As Critical Factor in Disaster Management and Sustainable Development in Nigeria. Int J Dev Econ Sustain [Internet]. 2014;2(3):58–72. Available from: http://news.bbc.co.uk
[39] Al Thobaity A. Overcoming challenges in nursing disaster preparedness and response: an umbrella review. BMC Nurs. 2024;23(1):562.
[40] Algfari SM, Alghamdi AS, Almuhaylib AM, Alzaher MA, Alotaibi SS, Alanazi ZH, et al. Data-driven Approaches to Improving Emergency Response Times and Patient Outcomes. Int J Health Sci (Qassim). 6(S10):1833–49.
[41] Kapucu N, Hawkins C V., Rivera FI. Disaster Preparedness and Resilience for Rural Communities. Risk, Hazards Cris Public Policy. 2013;4(4):215–33.
[42] Yip Y-C, Yip K-H, Tsui W-K. The transformational experience of junior nurses resulting from providing care to COVID-19 patients: from facing hurdles to achieving psychological growth. Int J Environ Res Public Health. 2021;18(14):7383.
[43] Nagashima-Hayashi M, Neo P, Hui SGL, Wong GJ, Ravn Knop M, Shrestha P, et al. Exploring protective psychological factors of healthcare professionals during COVID-19 in Singapore: A qualitative study. J Workplace Behav Health. 2023;38(4):388–415.
[44] Blake ME. Unpredicted but Not Unexpected: Developing Prepared Health and Human Services Crisis Leaders (Doctoral Dissertation). University of Southern California; 2024.
[45] Rau B, Blake VL. Physiotherapy in conflict zones: the expertise of the international committee of the red cross supported hospital projects. Physiotherapy [Internet]. 2015;101:e1263–4. Available from: http://dx.doi.org/10.1016/j.physio.2015.03.1170
[46] Beattie S. An investigation into the relationship between the emotional experience of healthcare professionals, the three flows of compassion and compassion fatigue within the context of the pandemic (Doctoral Thesis). University of Southampton; 2023.
[47] Sarah B. Baker. Occupational therapists in disaster preparedness, response, and recovery: A survey of knowledge and attitudes (Paper 141, Master's and Doctoral Projects). The University of Toledo; 2012.
[48] Schnabel S. Meeting rehabilitation needs of persons with disabilities (PWDs) in an emergency medical response: a role for physiotherapy? (Master Thesis) [Internet]. The University of Bergen; 2013. Available from: https://hdl.handle.net/1956/8200
[49] Tan G. Barriers and facilitators to the participation

of physical therapists in disaster response following natural hazard-driven sudden-onset disasters: A systematised integrative review of the literature. Int J Disaster Risk Reduct. 2023;100(November 2023):104153.
[50] Boetto H. Boetto H. Addressing disaster fatigue: A SAFE framework for enhancing disaster resilience in social work. Int Soc Work. 2024;67(6):1327–40.
[51] May S, Potia TA. An evaluation of cultural competency training on perceived patient adherence. Eur J Physiother. 2013;15(1):2–10.
[52] McGowan E, Beamish N, Stokes E, Lowe R. Core competencies for physiotherapists working with refugees: a scoping review. Physiother (United Kingdom) [Internet]. 2020;108:10–21. Available from: https://doi.org/10.1016/j.physio.2020.04.004
[53] Côté D. Intercultural communication in health care: challenges and solutions in work rehabilitation practices and training: a comprehensive review. Disabil Rehabil. 2013;35(2):153–63.
[54] O'Shaughnessy DF, Tilki M. Cultural competency in physiotherapy: a model for training. Physiotherapy. 2007;93(1):69–77.
[55] Yoshikawa K, Brady B, Perry MA, Devan H. Sociocultural factors influencing physiotherapy management in culturally and linguistically diverse people with persistent pain: a scoping review. Physiotherapy. 2020;107:292–305.
[56] Yu J-R, Lin L-P, Lin J-D. Differences in and Factors Related to Willingness to Provide Care to Patients with Suspected or Confirmed COVID-19 in Long-Term Care Facilities. Int J Environ Res Public Health. 2022;19(20):13461.
[57] Billings J, Ching BCF, Gkofa V, Greene T, Bloomfield M. Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: a systematic review and qualitative meta-synthesis. BMC Health Serv Res. 2021;21:1–17.
[58] Phillips TA. Attitudes and Perceptions of Emergency Medical Service Providers' Role in Educating Patients: A Cross-Sectional Survey(Doctoral Thesis). The Pennsylvania State University; 2024.
[59] Curtin M, Richards HL, Fortune DG. Resilience among health care workers while working during a pandemic: A systematic review and meta synthesis of qualitative studies. Clin Psychol Rev. 2022;95:102173.
[60] Wald HS. Optimizing resilience and wellbeing for healthcare professions trainees and healthcare professionals during public health crises–Practical tips for an 'integrative resilience'approach. Med Teach. 2020;42(7):744–55.
[61] Søvold LE, Naslund JA, Kousoulis AA, Saxena S, Qoronfleh MW, Grobler C, et al. Prioritizing the mental health and well-being of healthcare workers: an urgent global public health priority. Front public Heal. 2021;9:679397.
[62] Uthkarsh PS, Gururaj G, Reddy SS, Rajanna MS. Assessment and availability of trauma care services in a district hospital of South India; a field observational study. Bull Emerg Trauma. 2016;4(2):93–100.
[63] Rajan P. Community physiotherapy in India: Short review on research. Int J Disabil Hum Dev. 2015;14(2):175–7.
[64] Shahabi S, Skempes D, Mojgani P, Bagheri Lankarani K, Heydari ST. Stewardship of physiotherapy services in Iran: common pitfalls and policy solutions. Physiother Theory Pract [Internet]. 2021 Dec 2;38(12):2086–99. Available from: https://doi.org/10.1080/09593985.2021.1898705
[65] Pereira CC de A, Soares FRG, Machado CJ, Frio GS, Alves LC, Herkrath FJ, et al. Development of an Index to Assess COVID-19 Hospital Care Installed Capacity in the 450 Brazilian Health Regions. Disaster Med Public Health Prep [Internet]. 2022/08/22. 2023;17:e275. Available from: https://www.cambridge.org/core/product/AA3610AF4D03DD2E309B321BCAAEF676
[66] Henzel MK, Shultz JM, Dyson-Hudson TA, Svircev JN, DiMarco AF, Gater DR. Initial assessment and management of respiratory infections in persons with spinal cord injuries and disorders in the COVID-19 era. J Am Coll Emerg Physicians Open. 2020;1(6):1404–12.
[67] Hatakeyama J, Nakamura K, Sumita H, Kawakami D, Nakanishi N, Kashiwagi S, et al. Intensive care unit follow-up clinic activities: a scoping review. J Anesth [Internet]. 2024;38(4):542–55. Available from: https://doi.org/10.1007/s00540-024-03326-4
[68] Geerts JM, Kinnair D, Taheri P, Abraham A, Ahn J, Atun R, et al. Guidance for Health Care Leaders during the Recovery Stage of the COVID-19 Pandemic: A Consensus Statement. JAMA Netw Open. 2021;4(7):1–16.
[69] Brown CL, Chartrand L, Vollebregt B, Kaur D, Crawford T, Thille P. Primary care occupational, physical, and respiratory therapy role adaptation in the first year of the COVID-19 pandemic. BMC Prim Care [Internet]. 2024;25(1):3. Available from: https://doi.org/10.1186/s12875-023-02247-7
[70] Morley DA, Kilgore C, Edwards M, Collins P, Scammell JM, Fletcher K, et al. The changing role of Advanced Clinical Practitioners working with older people during the COVID- 19 pandemic: A qualitative research study. Int J Nurs Stud [Internet]. 2022;130:104235. Available from: https://doi.org/10.1016/j.ijnurstu.2022.104235
[71] Otto JS, Chase C, Barrett CW. Therapists in the Uniformed Services: Improving Care in Emergency Response Medical Missions. Public Health Rep. 2022;137(3):437–41.
[72] Bessette J, Lapointe AM, Gendron M, Camden C. Physiotherapy in Haiti: A qualitative study exploring local clinicians' perspectives. Physiother Res Int.

2021;26(2):1–9.
[73] Dean E, Jones A, Yu HP, Gosselink R, Skinner M. Translating COVID-19 Evidence to Maximize Physical Therapists' Impact and Public Health Response. Phys Ther. 2020;100(9):1458–64.
[74] Ojukwu CP, Eze OG, Uduonu EM, Okemuo AJ, Umunnah JO, Ede SS, et al. Knowledge, practices and perceived barriers of physiotherapists involved in disaster management: A cross-sectional survey of Nigeria-based and trained physiotherapists. Int Health. 2021;13(6):497–503.
[75] Wittmeier K, Parsons J, Webber S, Askin N, Salonga A. Operational considerations for physical therapy during covid-19: A rapid review. Phys Ther. 2020;100(11):1917–29.
[76] Alexander M, Alexander J, Arora M, Slocum C, Middleton J. A bellweather for climate change and disability: educational needs of rehabilitation professionals regarding disaster management and spinal cord injuries. Spinal cord Ser cases. 2019;5:94.
[77] Horrocks P, Hobbs L, Hlthman GD, Tippett V, Aitken P. Paramedic Disaster Health Management Competencies : A Scoping Review. 2019;34(3).
[78] Bhandari S, Wahl B, Bennett S, Engineer CY, Pandey P, Peters DH. Identifying core competencies for practicing public health professionals: results from a Delphi exercise in Uttar Pradesh, India. BMC Public Health. 2020;20(1):1–11.
[79] Dobalian A, Balut MD, Der-Martirosian C. Workforce preparedness for disasters: Perceptions of clinical and non-clinical staff at the U.S. Department of Veterans Affairs. BMC Public Health. 2020;20(1):1–9.
[80] Barzilay R, Moore TM, Greenberg DM, DiDomenico GE, Brown LA, White LK, et al. Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. Transl Psychiatry [Internet]. 2020;10(1). Available from: http://dx.doi.org/10.1038/s41398-020-00982-4
[81] Dawn M . Lewis, Michael Webb, Scott Kerwood DO. A Qualitative Case Study : Hospital Emergency Preparedness Coordinators Perspectives of Preparing for and Responding to Incidents(Doctoral Thesis). Capella University; 2015.
[82] Tawiah AK, Stokes E, Wieler M, Desmeules F, Finucane L, Lewis J, et al. Developing a core competency and capability framework for advanced practice physiotherapy: A qualitative study. Physiother Theory Pract. 2024 Jul;40(7):1477–91.
[83] Gebbie Kristine QK. Emergency and Disaster Preparedness: Core Competencies for Nurses: What every nurse should but may not know. Am J Nurs Sci. 102(1):46–51.
[84] Tekeli-Yesil S, Kiran S. A neglected issue in hospital emergency and disaster planning: Non-standard employment in hospitals. Int J Disaster Risk Reduct [Internet]. 2020;51(August):101823. Available from: https://doi.org/10.1016/j.ijdrr.2020.101823
[85] Bhandari V, Rauthan A, Sharma P, Chauhan R, Chauhan A. An evaluation of disaster preparedness practice among health professionals in hilly districts of Uttarakhand- A cross- sectional study. Eur Chem Bull. 2023;12(8):6182–8.
[86] King HC, Spritzer N, Al-Azzeh N. Perceived Knowledge, Skills, and Preparedness for Disaster Management among Military Health Care Personnel. Mil Med. 2019;184(9–10):E545–51.
[87] Ratner L, Martin-Blais R, Warrell C, Narla NP. Reflections on resilience during the COVID-19 pandemic: Six lessons from working in resource-denied settings. Am J Trop Med Hyg. 2020;102(6):1178–80.
[88] Kaniasty K, Norris FH. Social support in the aftermath of disasters, catastrophes, and acts of terrorism: Altruistic, overwhelmed, uncertain, antagonistic, and patriotic communities. Bioterrorism Psychol public Heal Interv. 2004;3:200–29.
[89] Aluisio AR, Daniel P, Grock A, Freedman J, Singh A, Papanagnou D, et al. Case-based Learning Outperformed Simulation Exercises in Disaster Preparedness Education Among Nursing Trainees in India : A Randomized Controlled Trial. 2016;(October):1–8.
[90] Harikrishnan R. Kamalambal H. Awareness and Attitude Towards Physiotherapy Among Higher Secondary Students: a Pilot Survey Study. Int J Physiother Res. 2017;5(1):1846–51.
[91] Cho, M., Kim, O., Pang, Y., Kim, B., Jeong, H., Lee, J. et al. Factors affecting frontline Korean nurses' mental health during the COVID-19 pandemic. Int Nurs Rev. 2021;68(2):256–65.
[92] Klima DA, Seiler SH, Peterson JB, Christmas AB, Green JM, Fleming G, et al. Full-scale regional exercises: Closing the gaps in disaster preparedness. J Trauma Acute Care Surg. 2012;73(3):592–8.
[93] Gowing JR, Walker KN, Elmer SL, Cummings EA. Disaster preparedness among health professionals and support staff: what is effective? An integrative literature review. Prehosp Disaster Med. 2017;32(3):321–8.
[94] Maruf FA, Ekediegwu EC, Akinpelu AO, Nwankwo MJ. Awareness , Belief , Attitude and Utilization of Physiotherapy Services in a Nigerian Population. J Niger Soc Physiother. 2012;20:1–9.
[95] Koly KN, Baskin C, Khanam I, Rao M, Rasheed S, Law GR, et al. Educational and Training Interventions Aimed at Healthcare Workers in the Detection and Management of People With Mental Health Conditions in South and South-East Asia: A Systematic Review. Front Psychiatry. 2021;12(October).
[96] Daily E, Padjen P, Birnbaum M. A review of competencies developed for disaster healthcare providers: Limitations of current processes and applicability. Prehosp Disaster Med. 2010;25(5):387–95.
[97] Etsuko Yoshikawa. Competencies required for

occupational health professionals during disasters as determined from the experiences of occupational health professionals working at workplaces affected by the Kumamoto earthquake. J Ind Hyg [Internet]. 2021;Vol. 63(6):291–303. Available from: https://www.jstage.jst.go.jp/article/sangyoeisei/63/6/63_2020-033-B/_article/-char/ja/