

Knowledge and attitude of physical therapists regarding their role in disaster management

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ABSTRACT

Background: A disaster is an unexpected, catastrophic event that interferes with a community and society and causes harm to it. When disaster occurs, there is an immediate, catastrophic loss of life and disabilities. In order to improve outcomes, physical therapy is crucial for the rehabilitation process and for properly integrating people with disabilities into society.

Objective: To assess the knowledge and attitude of physiotherapist regarding their role in disaster management.

Methods: A Cross-sectional survey was conducted on physiotherapists from different hospitals, clinics and institutes of Hyderabad in May 2022 to December 2022. The questionnaire, comprises of 26 close ended questions, filled by physiotherapist after the approval (IU/IIRS/SIAR/2022/074) granted by Isra Institute of Rehabilitation Sciences, Isra University, Hyderabad Ethical Committee. Study included both male and female physical therapists who gave written consent and currently engaged in their work field. Physiotherapists not currently practicing, had less than one year of experience and held a diploma degree were excluded from the study. The data was analyzed by using the SPSS version 22.

Results: A total of 169 physical therapists participated and returned completely filled questionnaire. The mean age of participants was 29.00 ± 2.89 years. The study comprised 80 male physiotherapists (47.3%) and 89 female physiotherapists (52.7%). Average knowledge related to disaster management was found among physical therapist with percentage of 55.0% and 97.5% of participants displayed positive attitude related to management of disastrous events.

Conclusion: This study concluded that the physical therapists have average knowledge score and positive attitude regarding disaster management.

Keywords: Attitude, catastrophe events, knowledge, management, physical therapists.

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Introduction:

Disaster is an unanticipated and sudden tragic event that disrupts the community and society and cause harm to society and environment.(1) Today climate change certainly led a drastic increase in the frequency and intensity of natural disaster globally influencing many people especially high impact in developing countries.(2) Disasters can manifest in various forms, ranging from brief disruptions lasting hours to ongoing

destruction spanning days or even weeks.(3) Calamity Natural and technological are the two categories of Disaster. A natural calamity includes an earthquake, flood, cyclone, typhoon, volcanic explosion, fire, heat waves and ice storms. Technological disaster includes chemical emergency, biological hazards, radiological events, vehicle accidents, and terrorism and arm conflicts.(4)

Clearly, natural disasters became more frequent, resulting in a higher number of human fatalities, injuries, and widespread displacement.(5) Natural disasters not only claim lives but also result in severe damage to infrastructure, agriculture, and livestock, leading to billions of dollars in economic losses. In the aftermath, survivors are often left in a state of vulnerability, losing their homes, facing increased risks of disease outbreaks, and lacking access to basic necessities such as food, water, and healthcare. According to the World Health Organization (WHO), low- and middle-income countries (LMICs) are particularly affected

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by such events due to weak infrastructure, delayed rescue operations, and inadequate disaster management systems. One of the most pressing challenges in disaster-stricken areas is the outbreak of waterborne diseases, as contaminated water supplies pose significant health risks. These diseases are frequently reported as leading causes of death in disaster zones and temporary camps for displaced populations.(6)

Climate change and the rise in extreme weather events have led to an increase in natural hazards in Pakistan. Significant hazards include inland floods, storms, earthquakes, landslides, droughts, cyclones, and tsunamis.(7) The 2019 Climate Vulnerability Index ranked Pakistan 8th out of the 10 most affected countries due to extreme weather events that occurred between 1998 and 2017.(8) Pakistan has experienced numerous severe natural hazard events in recent decades. Between 1970 and 2020, the international disaster database recorded 191 such incidents, including floods, avalanches, landslides, heatwaves, earthquakes, and droughts.

These disasters have affected over 96.77 million people and resulted in nearly USD 28.45 billion in damages. Flash floods have caused the largest economic losses, making up around 36% of the total, followed by riverine floods at nearly 34%, earthquakes at approximately 19%, and storms at 6%. These events have led to nearly 1 million fatalities, with earthquakes accounting for about 80% of the total deaths.(7)

Regardless of the sort of disaster, the result can be devastating as it causes economic losses, loss of loved ones and death. These kind of circumstances occur when susceptible people are ill-equipped to cope with catastrophic catastrophes. Many people can recover from disasters with support from family and community, yet some may need additional help to navigate and progress along the path to recovery. (3) Due to rise in catastrophic events globally, the role of healthcare profession particularly Physiotherapist are needed to better prepare for catastrophic events. (8) Healthcare professionals are esteemed members of society and are obligated by clear ethical principles to contribute to the overall welfare of the community.(9)

Rehabilitative services like physical therapy in disaster response frameworks is essential for mitigating the impact of disasters on individuals and communities, promoting recovery, and building resilience against future events to prevent long term disabilities.(10)

Physiotherapist should play a crucial role in medical treatment for disaster management.(11) Disaster mostly impacts the vulnerable people posing a number of

challenges for them. Numerous disabling conditions are caused by disaster such as spinal cord injury, traumatic brain injury, long bone fracture, limb amputation and nerve injuries and some other conditions are swollen feet, leg pain, cramps, headache, ache, cervical injury, facillitis, tendonitis, ligament strain or sprain and other musculoskeletal related injuries which may lead to immobilization, posture deformity.(8)

Physiotherapists are needed in crisis situations as they are trained to provide clinical care to patients. (12) They are experts in assessing physical abilities, diagnosing movement dysfunctions, and implementing personalized treatment plans to improve mobility, relieve pain, and enhance overall quality of life. PTs utilize a variety of techniques such as therapeutic exercises, manual therapy and modalities to address impairments, promote recovery from injuries and manage chronic conditions.(13) Thus, therapists are recognized as valuable assets in enhancing the effectiveness and impact of Disaster Relief Team during disaster response and recovery phases.(14)

Over a few decades the role of physiotherapist in disaster management have been focused but lacks investigation related to knowledge and awareness of physiotherapist regarding their role in disaster management.(1) However, there is a notable gap in research regarding the contributions of support staff and allied health professionals in disaster scenarios, especially in Pakistan.(15) It has been observed that very less physical therapists are included in team when dealing with any disaster and there is inadequate documented guideline notifying their role. (11) So, it is imperative to find out the knowledge and awareness of Physiotherapist about their task in Disaster Management. This identification may give opportunity to enter the team of Disaster management which may ultimately enhance the lives of survivors in the relevance, this survey is carried out.(12)

Methods:

It was a cross-sectional study, with ethical approval number, conducted on physical therapist recruited from different Hospitals, clinics and institutes of Hyderabad from May 2022 to December 2022. A convenience sampling approach was employed to select participants for the study. Inclusion criteria required participants to be male or female physical therapists having minimum degree of Doctor of Physical Therapy, experience of one or more years, willing to participate and providing written consent. Physical Therapist not currently active in the field were excluded from the study. The sample size of 169 was determined using the Raosoft

sample size calculator, assuming a 50% response distribution, 95% confidence level, and a 3% margin of error with population estimation of 200. Prior to data collection, participants were required to provide written informed consent, and the study protocol was reviewed and approved by an Ethical Committee (IU/IIRS/SIAR/2022/074).

The questionnaire used in this study was adapted from research conducted by Sarah B. Baker in 2012 at the University of Toledo, focusing on "Occupational Therapists in Disaster Preparedness, Response and Recovery: A Survey of Knowledge and Attitudes".(16) It was administered to physical therapists, comprising sections on demographics (5 questions), perception of abilities and experience (9 questions), knowledge (8 questions), and attitude (9 questions), all of which were structured as closed-ended questions.

Responses in the perception of abilities and experience section were analyzed in terms of percentages. The knowledge section's total score was categorized into poor [0-2], average [3-5], and high [6-8], with correct answers scored as 1 and incorrect answers as 0. Similarly, the attitude score ranged from negative [0-4] to positive [5-9], scoring 1 for strongly agreed/agreed responses and 0 for strongly disagreed/disagreed responses. The study investigator was present during questionnaire administration to assist participants with any questions without influencing their answers. Confidentiality of all information was maintained, and data were solely used for statistical analysis.

Data analysis was performed using Statistical Package for Social Sciences (SPSS) Version 22, employing descriptive statistics such as frequencies and percentages to summarize the findings.

Results:

A total of 169 Physical therapists participated in the study and returned completely filled questionnaire. The mean age of participants was 29.00 ± 2.89 years. Male participants were 80 (47.3%) and female participants were 89 (52.7%) in this study. According to the year of experience 86 (50.9%) had 1-3 years of experience, 52 (30.8%) had 4-6 years' experience and 31 (18.3%) had >6 years of experience.

Table 1 shows the perception of abilities and experience of physical therapist regarding disaster management. 82(48.5%) reported that they are capable of providing physical therapy services during a disaster and 68(40.2%) have even volunteered themselves in disaster response. No one had taken an official training course in disaster preparedness and response but

everyone is interested in taking a course 169 (100%). In participant's opinion, only 57(33.7%), 86(50.9%), 62(36.7%) and 80(47.3%) of physiotherapist felt prepared for the provision of services in mitigation, preparedness, response and recovery phases, respectively. Only 41(24.3%) reported the existence of personal emergency plan.

Knowledge of high, average and low grade was seen among 2 (1.2%), 93 (55.0%) and 74 (43.8%) respectively (Table 4). Most of the participants, 102(60.4%), knew that flood is the most common natural disaster in the world. But only 10 (5.9%) of physical therapist answered correctly as CBRNE is an acronym that covers all common disasters as shown in Table 2.

Positive attitude was seen in 165 (97.6%) study participants whereas only 4 (2.4%) had negative attitude (Table 4). 166(98.2%) agreed on physiotherapy as an appropriate profession to be a part of disaster response and recovery teams. Participants agreed that physical therapist should be a part of preparedness 164 (97.0%), mitigation 154 (91.1%), response 147 (87.0%) and recovery 169 (100%) phases of disaster management as shown in Table 3.

Discussion:

Disaster is an unexpected catastrophic event that destroys the community and society. It is complicated, worldwide issue that affects the people and community every year and may cause physical and mental disabilities.(17) This cross-sectional study was conducted to assess the knowledge and attitude of Physiotherapist regarding their role in disaster management.

According to this study it has been found that physical therapist had average knowledge regarding disaster management with percentage of 55.0% whereas study conducted by Pirasanth Niruja et al had 54.3% knowledge on disaster preparedness among allied health professionals.(18)

In a study carried out by Waheeb Nasr et al. reported only 32% of participants had good knowledge, while the remaining had fair (53.5%) or poor (14.5%) knowledge regarding management of a disaster.(19) Another study conducted by Ellen Corrigan et al showed 3.57 average disaster preparedness knowledge score out of 10.(20) However, a study conducted by Chidiebele P. Ojukwu in Nigeria reported 68.7% physiotherapist had knowledge regarding role of disaster management in which 84% therapist emphasize their major role in recovery phase (11) as compared to current study in which 62% feels prepared to provide physiotherapy services in recovery

Table 1. Response distribution on Perception of abilities and experience Items (n=169).

S. No	Perception of Abilities and Experience items	Yes n(%)	No n(%)
1.	Do you feel capable of providing Physiotherapy services during a disaster?	82(48.5)	87(51.5)
2.	Have you ever volunteered your time in response to a disaster?	68(40.2)	101(51.8)
3.	Have you taken a course in disaster preparedness and response?	0(0.0)	169(100.0)
4.	Would you be interested in taking a course in disaster preparedness and response?	169(100.0)	0(0.0)
5.	Do you feel prepared to provide physiotherapy services during the mitigation phase, following a disaster?	57(33.7)	112(66.3)
6.	Do you feel prepared to provide physiotherapy services during the preparedness phase?	86(50.9)	83(49.1)
7.	Do you feel prepared to provide physiotherapy services during the response phase following a disaster?	62(36.7)	107(63.3)
8.	Do you feel prepared to provide physiotherapy services during the recovery phase following a disaster?	80(47.3)	89(52.7)
9.	Do you have personal emergency plan?	41(24.3)	128(75.7)

Table 2. Response distribution on Knowledge Items (n=169).

S. No	Knowledge items	Correct n(%)	Incorrect n(%)
1.	CBRNE is an acronym that covers all common disasters.	10(5.9)	159(94.1)
2.	The most common natural disaster in the world is floods.	102(60.4)	67(39.6)
3.	The longest phase of a disaster is recovery	105(62.1)	64(37.9)
4.	It is true that the more people that respond to a disaster the better is the outcome.	66(39.1)	103(60.9)
5.	It is true that a disaster of biologic nature is well defined.	22(13.0)	147(87.0)
6.	Botulism is caused by an infection.	43(25.4)	126(74.6)
7.	There are general categories of blast injuries.	25(14.8)	144(85.2)
8.	Special needs registries (SNRs) have been developed in communities to help with early identification, evacuation information, and to assist with sheltering needs.	77(45.6)	92(54.4)

Table 3. Response distribution on Attitude Items (n=169).

S. No	Attitude Items	Strongly Agree/ Agree n(%)	Strongly Dis- agree/Disagree n(%)
1.	Therapist should be included in the preparedness phase of disaster management.	164(97.0)	5(3.0)
2.	Therapist should be included in the mitigation phase of disaster management.	154(91.1)	15(8.9)
3.	Therapist should be included in the response phase following a disaster.	147(87.0)	23(13.0)
4.	Therapist should be included in the recovery phase following a disaster.	169(100.0)	0(0.0)
5.	Therapists should be involved in the planning of shelter operations.	136(80.5)	33(19.5)
6.	Therapist should be involved in the evacuation planning process for special needs populations.	111(65.7)	58(34.3)
7.	Therapists should be involved in the evacuation planning of healthcare facilities.	102(60.4)	67(39.6)
8.	Therapists can provide valuable assistance in environmental modifications within shelters and disaster situations.	159(94.1)	10(5.9)
9.	Physiotherapy is an appropriate profession to be a part of disaster response and recovery teams.	166(98.2)	3(1.8)

Table 4. Scoring of Knowledge and Attitude about Disaster Management.

Scoring (n=169)			
Knowledge			
Score	Grade	Frequency	Percentage
0-2	Low	74	43.8
3-5	Average	93	55.0
6-8	High	2	1.2
Attitude			
0-4	Negative	4	2.4
5-9	Positive	165	97.6

phase. In this current study 10(5.9%) were aware about CBRNE is an acronym that covers all common disasters where as in previous study conducted by Sarah B. Baker only 4.0% reported that CBRNE is an acronym that covers all common disasters.(16)

Regarding this current study 74.6% agree to include physiotherapist in the preparedness phase and 52.7% agree to include physiotherapist in mitigation phase of disaster management. Whereas in previous study conducted by Francis Clarence C.Chua et al in 2022 reported 50% were strongly agree to include physiotherapist in preparation phase and 40% were strongly agree to include physiotherapist in disaster management team.(12)

According to the current study, 94.1% of the therapists can help in modifying the environment with respect to shelters and disaster situations where as in research conducted by Chidiebele P. Ojukwu reports that 81.3% of therapist had knowledge regarding the contributions in planning for managing a disaster.(11)

In current study it has been observed that 0% participants received course in disaster preparedness and response although 100% are willing to take course of disaster management however a study conducted by Ellen Corrigan et al showed that disaster studies were taken up by 59.3%, 37.9% had practiced a disaster simulation drill, and 12.9% had worked in a disaster situation/s.(20) G. Rajesh study revealed that only 13.04% of the respondents hand attended any training program related to disaster management.(9) This study reveals that the Physiotherapist were not efficiently involved in disaster management because of their unawareness, lack of training programs and minimum knowledge. Also, another study conducted by Pirasanth Niruja et al indicates a big difference between knowledge and current demand of disaster preparedness among allied health professionals.(18) In this study most of the Physiotherapist reported that they have very limited exposure in catastrophic events.

This study faced several limitations. The findings cannot be broadly applied because they were based on data collected from a single city. Convenience sampling, while convenient, might have introduced biases into the study results. The biases associated with questionnaire use, such as social desirability bias (faking good or bad) and the tendency to agree (yeasaying), may have influenced the results of this study. Future research should aim to include larger and more diverse populations from multiple cities to enhance generalizability. Additionally, future studies should investigate and prioritize strategies and regulations aimed at mitigating risks associated with health factors during disasters. It is also recommended to develop educational courses that support the knowledge and practices of physical therapists in this area. Professional development programs should prioritize disaster-specific training and encourage cross-disciplinary collaboration.

Conclusion:

This study concluded that the physical therapists have average knowledge score and positive attitude regarding disaster management.

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Conflict of interest: None to declare.

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Author's Contribution:

Lalwani K: Conception and design of the study, data analysis, manuscript writing

Rehman SA: Data analysis, manuscript drafting, critical revision

Panhwar S: Design of the study, data collection, data entry and interpretation

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