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Case Report

Rehabilitation Teams Across the Disaster: A Field Report

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ABSTRACT

Background and Objectives: The article highlights the crucial role of rehabilitation teams in managing disasters. While the importance of rehabilitation in the post-disaster phase is well-recognized, the article underscores the need for greater emphasis on pre-disaster planning and mitigation efforts.

Case Presentation: A case study on the 2017 Kermanshah earthquake illustrates the challenges and successes of physiotherapy in disaster relief. The Iranian Physiotherapy Association (IPA) swiftly established a temporary clinic staffed by volunteers. Physiotherapy addressed a range of injuries, including soft tissue and neurological problems. Challenges in delivering physiotherapy services during emergencies include resource constraints, accessibility issues, and infrastructure damage.

Conclusion: The article concludes that improvements in these areas can significantly enhance physiotherapy services during crises, leading to better recovery outcomes for survivors. Increased collaboration of rehabilitation teams and implementing research, may improve disaster preparedness and response.

Keywords: Disaster management, Rehabilitation teams, Preparedness, Response, Physiotherapy

Occupational therapists, Audiologists, Optometrists

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What is "already known" in this topic:

The role of rehabilitation groups in the post disaster has received more attention in the scientific literature.

What this article adds:

This article provides the critical role of rehabilitation teams throughout the pre disaster life cycle, with a particular emphasis on risk reduction and preparedness.

Introduction

Anthropogenic climate change has increased the frequency and intensity of disasters worldwide [1]. Between 1995 and 2022, a total of 11,360 natural disasters occurs, killing 1,681,173 individuals and injuring another 7,599,259. The Asian continent experienced the highest frequency of natural disasters, accounting for over half of the total fatalities and injuries [2]. Iran has been plagued by over 250 natural disasters in the last century, such as floods, earthquakes, droughts, storms, and other calamities [3]. A total of 28 natural disasters, predominantly floods and earthquakes, have occurred in the regions surrounding Tehran, including Alborz, Markazi, Qazvin, and Qom Provinces, Iran. These events impacted approximately 11 million individuals, resulting in a tragic loss of at least 55,769 lives and causing an estimated US$22 billion in economic damages [4].

The International Federation of Red Cross and Red Crescent Societies (IFRC) defines disaster management as the organization and management of resources and responsibilities to deal with all humanitarian aspects of emergencies to reduce the effects of disasters. This continuum provides four stages, preparedness, response, recovery, and mitigation. The development of scientific knowledge of disaster rehabilitation can be beneficial for increasing the health, productivity, independence, and quality of life of people with physical disabilities.

The role of rehabilitation groups in the pre-disaster and mitigation phases of disaster preparedness has received less attention in the scientific literature than their role in the post-disaster phase [5]. The focus of existing research has been on the role of individuals with disabilities, who should be identified and trained in advance.

To strengthen the national rehabilitation capacity, including services and skilled workforce and empowering rehabilitation groups, international and local health services for comprehensive disaster management in the future, strong leadership, and effective action of national and international institutions and universities are necessary. For this reason, each rehabilitation faculty should have a disaster health liaison from optometry, audiology, orthotics and prosthetics, physiotherapy, and occupational therapy [6]. A rehabilitation team should be able to identify critical situations, assess priorities, and plan appropriate interventions. In addition to their daily routines, these professionals should receive training in disaster principles and practices, conduct necessary exercises, and prepare necessary equipment so that they can be deployed to disaster zones if needed by implementing a community-based rehabilitation approach. Disaster response efforts can effectively reach a wider range of people and provide them with the necessary assistance promptly [7]. Some of the responsibilities of team members are as follows.

Occupational therapists play a crucial role in pre-disaster planning, immediate response, and ongoing recovery initiatives [8, 9]. Pre-disaster roles for occupational therapists include mapping risks and resources, enhancing accessibility in shelters and homes, delivering sensitivity training on disability issues, crafting early evacuation plans, and implementing early warning systems specifically for individuals with disabilities [10]. Preparing volunteers to rescue people with disabilities. The intervention of occupational therapists can effectively minimize the occurrence of complications and prevent the deterioration of medical conditions. Their expertise in problem-solving allows them to develop solutions for safe mobilization and evacuation, considering both pre-existing conditions and any new limitations caused by the disaster [9, 11].

The scarcity of research evidence hinders efforts to advocate for physical rehabilitation within disaster settings and restricts the sharing of valuable experiences and lessons learned, which could significantly improve future disaster preparedness for orthotics and prosthetics (O&P) services. The most crucial aspect of preparedness in O&P's is estimating the required equipment based on previous experiences and procuring these supplies in advance [12]. Rehabilitation clinics are vital for patients recovering from head trauma, spinal cord injuries, amputations, fractures, and musculoskeletal issues. Managing a patient's complex medical needs, lingering physical limitations and emotional well-being requires a holistic approach starting as soon as possible. Research highlights the effectiveness of early physical rehabilitation, psychosocial support, and functional training in promoting optimal recovery. By studying the types of injuries and rehabilitation needs of disaster survivors, we can significantly improve future rescue efforts, treatment strategies, and rehabilitation plans for musculoskeletal injuries caused by disasters [13, 14].

Audiologists play a vital role in providing services to people with hearing loss and deafness before, during, and after disasters. Before a disaster, develop disaster preparedness plans and provide education to people with hearing loss and deafness on how to prepare and stay safe in the event of a disaster [15]. Offer preventive services to people with hearing loss and deafness who may be at higher risk during disasters. These services may include hearing evaluations and hearing aid fittings, education on hearing loss management, and information on available community resources. Partner with other organizations to ensure that the needs of people with hearing loss and deafness are considered. During disasters, deliver immediate services to people with hearing loss and deafness [16]. Stay in contact with people with hearing loss and deafness to provide updates and information about the emergency and offer resources to help them cope and recover [17].

Optometrists are well-equipped to address the vision-related challenges posed by disasters. Their expertise and skills are crucial in various phases of disaster management: Optometrists can educate the public about disaster preparedness measures related to eye health, such as assembling an emergency eye care kit, identifying potential eye hazards, and understanding first aid for eye injuries in the pre-disaster area [18]. Optometrists can establish networks with other healthcare providers, community organizations, and disaster relief agencies to facilitate coordination and resource sharing during emergencies [19]. They can deploy mobile eye care units to affected areas, providing essential eye exams, dispensing prescription eyewear, and treating minor eye injuries at the response phase, addressing both immediate needs and long-term consequences of eye trauma or exacerbated eye conditions.

Physical therapists should familiarize themselves with disaster response plans within their organizations and participate in risk assessments related to hazards in their area. They should also be part of the team creating response plans, with national associations offering support for both national and local planning. In disaster-prone regions, it may be beneficial to include principles of acute trauma rehabilitation in undergraduate physical therapy programs, focusing on specialties, such as managing spinal injuries and amputations. Training in triage, first aid, basic life support, wound dressing, and applying casts and slings can also be valuable for physical therapists, enabling them to assist in disaster response efforts and handle injuries in remote areas or emergency departments [20].

Case Description

This case investigates the role of physiotherapy in post-earthquake recovery efforts following the 2017 earthquake in Kermanshah Province, Iran. The Sarpol-e Zahab earthquake left over 10000 people injured, many of whom required physiotherapy. The Iranian Physiotherapy Association (IPA) swiftly established a temporary clinic staffed by volunteers (Figure 1). A makeshift physiotherapy clinic was promptly set up, and with the assistance of physiotherapy specialists, treatment for skeletal, muscular, and neurological injuries was provided to patients and those in need from the very first hours following the earthquake. In the wake of the earthquake in western Iran, the IPA swiftly announced a bank account number to receive financial assistance. Alongside this, volunteers from other parts of the country were called upon to provide round-the-clock services, working with local personnel familiar with the region's geography and language. Physiotherapy sessions were provided daily at the field physiotherapy clinic, addressing a range of issues primarily consisting of soft tissue injuries such as ankle sprains, muscle strains, and neurological injuries, including facial nerve palsy, and peripheral nerve avulsions of the upper and lower extremities.

The disaster response efforts focused on addressing the immediate needs of survivors, including medical care, shelter, and rehabilitation. Physiotherapy emerged as a crucial component of the recovery process, aiming to restore function, alleviate pain, and enhance mobility

Figure 1. Temporary clinic established by the IPA

for those affected by musculoskeletal and neurological injuries. However, providing effective physiotherapy services during emergencies presents several challenges, including limited resources, disrupted infrastructure, and accessibility barriers. In addition to monetary and non-monetary aid to earthquake-affected compatriots, the IPA established a physiotherapy clinic in the army field hospital during the first days after the earthquake. By forming the "Crisis Committee of the Physiotherapy Association," physiotherapists specializing in skeletal, muscular, and nervous injuries participated in the field. These dedicated professionals treated patients and provided care to those in need from the early hours of the earthquake. Their efforts exemplify the critical role of physiotherapy in disaster response and recovery. To provide comprehensive rehabilitation, we need to prepare a multi-disciplinary team of rehabilitation specialists with different expertise, especially in physical rehabilitation, such as prosthetics and orthotics, and occupational therapist. This holistic approach facilitates the management and recovery process in disaster response.

Conclusion

This paper underscores the critical role of rehabilitation teams throughout the disaster lifecycle, with a particular emphasis on risk reduction and preparedness. The contributions of occupational therapists, orthotics and prosthetics specialists, and physiotherapists are indispensable in mitigating disaster impacts and enhancing recovery outcomes. By incorporating rehabilitation professionals into disaster management plans, we can significantly improve preparedness, response, and recovery efforts. This study emphasizes the importance of comprehensive rehabilitation, including physical, psychosocial, and functional support. To strengthen national rehabilitation capacity, collaborative efforts involving governments, healthcare institutions, and academic communities are essential. Future research should focus on developing evidence-based guidelines for rehabilitation interventions across different disaster types, evaluating the effectiveness of pre-disaster planning strategies, and exploring innovative approaches to delivering rehabilitation services in challenging environments.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

Conceptualization, supervision, review and editing: Samaneh Heidari Methodology: Hassan Feili Balavi; Writing the original draft: Fatemeh irannezhad.

Conflict of interest

The authors declared no conflict of interest.

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مطالعه موردی

نقش تیم‌های توانبخشی در زمان قبل از وقوع بلایای طبیعی: یک گزارش میدانی

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کلیدواژه‌ها:
مدیریت بلایا، تیم‌های توانبخشی، آمادگی، پاسخ، متخصص فیزیوتراپی، شنوایی‌شناسی، بینایی‌سنجی

چکیده

مقدمه: این مطالعه به نقش حیاتی تیم‌های توانبخشی در مدیریت بلایا می‌پردازد، درحالی‌که اهمیت توانبخشی در مرحله پس از بلا به‌خوبی شناخته شده است. در این مقاله به لزوم تأکید بیشتر بر برنامه‌ریزی و تلاش‌های کاهش آسیب قبل از بلایا پرداخته می‌شود.

روش: این پژوهش به یک مطالعه موردی درخصوص زلزله کرمانشاه در سال ۲۰۱۷ اشاره می‌کند. چالش‌ها و فرصت‌های انجمن فیزیوتراپی در کمک به افراد ناتوان بیان شده است. انجمن فیزیوتراپی ایران به‌سرعت یک کلینیک موقت را با کارکنان داوطلب راه‌اندازی کرد. فیزیوتراپی به طیف وسیعی از آسیب‌ها، ازجمله مشکلات بافت نرم و عصبی می‌پردازد. چالش‌های ارائه خدمات فیزیوتراپی در حوادث اضطراری شامل محدودیت‌های منابع، مسائل دسترسی و آسیب‌های زیرساختی است.

نتیجه‌گیری: نتایج این مطالعه نشان داد بهبود در این زمینه‌ها می‌تواند به‌طور قابل‌توجهی خدمات فیزیوتراپی را در بلایا افزایش دهد و به کیفیت بهتر نتایج بهبودی برای بازماندگان منجر شود. همکاری بیشتر تیم‌های توانبخشی و اجرای تحقیقات ممکن است آمادگی و پاسخگویی در برابر بلایا را بهبود بخشد.

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