

Knowledge, Attitude and Practices of Healthcare Professionals Regarding Disaster Management

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Author's Contribution

^{2,3}Substantial contributions to the conception or design of the work; or the acquisition, ¹Supervision, ^{1,3}Drafting the work or revising it critically for important intellectual content

Funding Source: None

Conflict of Interest: None

Received: Aug 21, 2025

Revised: Nov 13, 2025

Accepted: Dec 09, 2025

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ABSTRACT

Objective: To assess the level of knowledge, attitude, and readiness to practice disaster medicine among healthcare professionals.

Methodology: A cross-sectional observational study was conducted from November 2024 to January 2025, at the Pakistan Institute of Medical Sciences (PIMS) Islamabad. A self-administered, validated questionnaire was used to collect the information from the doctors regarding knowledge, attitude and practices about disaster management. Data was analyzed using SPSS version 25. **Results:** A total of 170 doctors participated in the study, 55.3% (n = 94) were males and 44.7% (n = 76) were females. House officers were the largest percentage of responders (56.5%, n = 96), followed by postgraduates (30%, n = 51). Most of the participants (95.3%, n=162) knew the disaster meaning. However, only 27.1% (n = 46) were aware of their hospital's disaster preparedness plan. 52.4% (n=89) were unclear about the disaster drills. Majority (97.1%, n = 165) agreed that disaster preparedness training should be required for the doctors.

Conclusion: There are gaps in disaster preparedness among doctors at PIMS, as many reported lacking formal training, awareness of hospital disaster plans, or participation in drills. A strong consensus among participants supported making disaster preparedness training mandatory, with a high willingness to engage in such programs.

Keywords: Disaster, Disaster preparedness, Disaster management, Healthcare professionals.

Cite this article as: Waqar SH, Atif M, Ejaz L, Sajid S, Khan M, Abidin ZU, Shahzad F, Rasheed S Knowledge, Attitude and Practices of Healthcare Professionals Regarding Disaster Management. *Ann Pak Inst Med Sci.* 2025; 21(4):689-693. doi. 10.48036/apims.v21i4.1598.

Introduction

The frequency of disasters has also gone up in recent decades. Man has witnessed both natural as well as man-made disasters, blurring the distinction between them to a large extent. These disasters have caused widespread destruction and fatalities, leaving the institutions and the community wanting in the front of disaster-related preparedness, relief, reconstruction, and recovery. A disaster is a situation or event that overwhelms local capacity, necessitating an external request at a national or international level. The World Health Organization (WHO) defines a disaster as 'a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental

losses that exceed the ability of the affected community or society to cope using its resources.¹ Globally, disasters are often associated with a significant physical, mental, environmental, and economic crisis, disproportionately affecting vulnerable populations.²

Disaster preparedness is a critical concern for healthcare providers in Asia, a region prone to various natural disasters such as earthquakes, floods, tsunamis, and cyclones, as well as man-made disasters like industrial accidents and armed conflict. In recent years, there has been growing interest in assessing the disaster awareness among healthcare providers to enhance their response capacity. The situation in Pakistan, a country that experiences frequent natural and man-made disasters,

mirrors broader regional trends while presenting unique challenges. Pakistan is highly prone to disasters, including flooding, earthquakes, and landslides. Over the past few decades, the country has faced numerous emergencies due to natural disasters, poverty, social unrest, and terrorist attacks. Major disasters, such as the 2005 earthquake and 2010 floods, have emphasized the need for preparedness, yet there remain significant gaps in disaster awareness and preparedness among healthcare providers. Recently, the devastating 2022 floods and landslides during the monsoon season severely impacted Pakistan.³

Healthcare professionals (HCPs), including physicians, pharmacists, and nurses, play a crucial role in disaster management.⁴ Their responsibilities include making critical decisions during emergencies and serving as part of the healthcare force. The effectiveness of a country's disaster response relies heavily on the qualifications, collaboration, and assessment skills of healthcare professionals. Hospitals' disaster preparedness programs are essential to ensure effective management during sudden emergencies.⁵

The proficiency of hospitals in managing disasters depends on pre-established programs and systems designed to meet the medical needs of victims while minimizing the negative impact on healthcare services.⁶ Disasters and major emergencies affect people's lives in many different aspects – their health, security, housing, access to food, water, and other life commodities. Therefore, it is vital to strengthen the disaster/emergency preparedness as well as the response to different natural and man-made disasters.⁷ The disaster management plays a crucial role in the mitigation of disaster consequences. Disaster management aims to support countries in building their disaster response capacities. In recent years, there has been growing interest in assessing the disaster awareness among healthcare providers to enhance their response capacity. The situation in Pakistan, a country that experiences frequent natural and man-made disasters, mirrors broader regional trends while presenting unique challenges. This important subject is not well studied in the local setup. Hence, as an initial step, this study aims to assess the level of knowledge, attitude, and readiness to practice disaster medicine among health care workers.

Methodology

A descriptive, cross-sectional study was conducted among healthcare professionals at the Pakistan Institute

of Medical Sciences (PIMS) in Islamabad, Pakistan. Data collection occurred between November 2024 and January 2025. A structured survey was conducted using both an electronic Google Form and a self-administered, validated paper questionnaire. The questionnaire consisted of six items capturing demographic information, 16 items assessing knowledge, five items assessing attitudes, and five items evaluating practices related to disaster management and preparedness.

This study included all the health care professionals at the Pakistan Institute of Health Sciences, irrespective of their rank and work experience. Management staff, nurses, and paramedical staff were excluded from the study. Ethical approval was obtained from the Ethics Research Review Board, Pakistan Institute of Medical Sciences, Islamabad, Pakistan. Data was analyzed using SPSS version 25.

Results

Of the 170 healthcare professionals who took part in the research, 55.3% (n = 94) were males and 44.7% (n = 76) were females. While 77.06% of the respondents (n = 131) were between the ages of 21 and 30, the participants' ages ranged from 20 to 60. House officers made up the largest percentage of responders (56.5%, n = 96), followed by postgraduates (30%, n = 51), Senior Registrar/Assistant Professor (10%, n = 17), associate professors (2.9%, n = 5), and professors (0.6%, n = 1). (Table I)

Table I: Demographic Characteristics of Respondents.

Category		N	%
Gender	Male	94	55.3%
	Female	76	44.7%
Age	21-30 years	131	77.06%
	31-40 years	23	13.53%
	41-50 years	13	7.65%
	51-60 years	3	1.76%
	>60 years	0	0%
Designation	House officer	96	56.5%
	PGR	51	30%
	SR/AP	17	10%
	Assoc. Professor	5	2.9%
	Professor	1	0.6%
Experience	<1 years	92	54.1%
	1-5 years	55	32.4%
	6-10 years	5	2.9%
	11-15 years	2	1.17%
	>15 years	15	8.8%
Specialty	Surgery & Allied	74	43.53%
	Medicine & Allied	94	55.29%

Of the sample, the most generally recognized disaster types were natural disasters (43.5%, n = 74), and 95.3% (n = 162) of participants knew what "disaster preparedness" meant. Furthermore, 70% (n = 119) knew

how to deal with disasters. Moreover, only 27.1% (n = 46) were aware of their hospital's disaster preparedness plan. Only 18.2% (n = 31) of the respondents, however, reported having formal disaster preparedness training. (Table II)

Table II: Knowledge about disaster management.			
Question	Answer	N	%
Are you aware of the term "disaster preparedness"?	Yes	162	95.3
	No	8	4.7
Do you have any knowledge to handle disaster situation?	Yes	119	70.0
	No	51	30.0
Are you aware of your hospital/clinic's disaster preparedness plan?	Yes	46	27.1
	No	124	72.9
Have you ever received any formal training on disaster preparedness?	Yes	31	18.2
	No	139	81.8
Are you aware of any local, regional or national disaster management agencies?	Yes	88	51.8
	No	82	48.2
Do you know who to contact in case of a disaster in your facility?	Yes	54	31.8
	No	41	24.1
	Not sure	75	44.1

Risk assessment was the most frequently mentioned essential element of disaster preparedness by the respondents (27.6%, n = 47). 94.1% (n = 160) of the sample as a whole correctly recognized the triage system as ranking patients according to their requirements and the resources at their disposal. Of the respondents, 52.4% (n = 89) were unclear, and 37.6% (n = 64) stated that their facility never holds disaster drills. Furthermore, 70% (n = 119) thought that testing knowledge and readiness was the main goal of disaster drills. Additionally, 41.8% (n = 71) of those surveyed were aware of where their facility's emergency exits and equipment were located. Furthermore, 32.9% (n = 56) expressed some degree of confidence in their ability to manage emergencies. Additionally, 31.2% (n = 53) concurred that their facility is disaster-ready. (Table III)

The vast majority of participants (97.1%, n = 165) agreed that disaster preparedness training should be required for healthcare professionals, and 75.3% (n = 128) said they would be very likely to take advantage of the opportunity if it was made available. First Aid Training was the most often chosen measure for personal disaster readiness (36.5%, n = 62), followed by establishing a family communication strategy (15.9%, n = 2). (Table IV)

Table III: Attitude about disaster management.

Question	Answer	N	%
Do you believe that disaster preparedness is important for healthcare professionals?	Strongly agree	142	83.5
	Agree	24	14.1
	Neutral	1	.6
	Disagree	3	1.8
Do you think your facility is adequately prepared for a disaster?	Strongly disagree	142	83.5
	Strongly agree	11	6.5
	Agree	53	31.2
	Neutral	53	31.2
How confident are you in handling a disaster situation in your workplace?	Disagree	33	19.4
	Strongly disagree	20	11.8
	Very confident	21	12.4
	Somewhat confident	56	32.9
How likely are you to participate in disaster preparedness if offered?	Neutral	62	36.5
	Not confident	19	11.2
	Very unconfident	12	7.1
	Very likely	128	75.3
	Somewhat likely	33	19.4
	Neutral	5	2.9
	Unlikely	1	.6
	Very unlikely	3	1.8

Table IV: Practices about disaster management.

Question	Answer	N	%
Have you ever participated in a disaster preparedness drill?	Yes	30	17.6
	No	134	78.8
	Not sure	6	3.5
Do you know the location of emergency exits and equipment in your facility?	Yes	71	41.8
	No	99	58.2
Do you routinely review or update your knowledge of your facility's disaster preparedness plan?	Yes, regularly	6	3.5
	Occasionally	55	32.4
	No	109	64.1

Discussion

Recent evidence on disaster awareness among healthcare providers highlights a growing recognition of the need for enhanced preparedness, although significant gaps remain in many regions.⁸ In this study, 95.3% of participants were familiar with the term "disaster preparedness", a significant increase compared to the 27.5% reported in a study conducted in Pakistan.⁵ This notable rise suggests that healthcare workers in 2024 have a greater understanding of disaster preparedness, likely due to increased firsthand experience with disaster situations. Disaster awareness varies widely based on location, hospital size, and access to resources. Awareness is increasing due to recent global health crises, but formal disaster preparedness training lags.⁹

The growing emphasis on disaster management in healthcare settings, along with global awareness campaigns, may have contributed to this positive trend. The WHO has emphasized the importance of countries developing and maintaining proactive plans to effectively respond to such events.¹⁰ Such heightened awareness is essential for improving emergency response, minimizing risks, and ensuring better preparedness for future disasters.

The majority of respondents (70%) had knowledge or experience in disaster management, a significant increase from the 30% reported in a 2018 study conducted in Bangladesh.¹¹ This improvement suggests that disaster preparedness has gained more attention in recent years, possibly due to the increasing frequency of emergencies and global health crises. Having a well-informed healthcare workforce is critical, as disasters can strike unexpectedly, requiring immediate and efficient responses. Events like the COVID-19 pandemic have demonstrated the necessity of preparedness, as healthcare professionals must act swiftly to manage resources, provide care, and implement safety measures.¹² Strengthening disaster management knowledge among healthcare workers enhances their ability to mitigate risks, protect communities, and maintain healthcare services during crises.

A significant proportion of doctors (75.3%) expressed interest in participating in disaster training programs, demonstrating their commitment to enhancing their skills and preparedness for emergencies. This willingness reflects an awareness of the crucial role healthcare professionals play in disaster response and their responsibility to minimize casualties and damage. These findings align with a study,⁴ which reported an even higher percentage of doctors eager to attend educational sessions on disaster preparedness. This growing interest underscores the need for accessible and well-structured training programs that equip healthcare workers with the necessary knowledge and practical skills to handle crises effectively. Investing in such training will not only improve individual competencies but also strengthen the overall healthcare system's ability to respond efficiently to unforeseen disasters.

This is concerning, as only a small fraction of healthcare professionals at the largest federal government hospital in Islamabad have received formal training in disaster preparedness. Despite the large number of doctors at the Pakistan Institute of Medical Sciences (PIMS), few have comprehensive knowledge in this area, leaving a critical

gap in emergency response capabilities. Rehman et al also highlighted that overall awareness and training among healthcare workers remain inadequate, further emphasizing the urgent need for enhanced training programs, policy reforms, and regular disaster drills.⁶ Strengthening disaster preparedness among medical professionals is essential to ensure a swift and effective response during emergencies, ultimately safeguarding both patients and healthcare providers from preventable risks.¹³

Limitations: This study has several limitations. One major limitation is that it focuses solely on a single hospital in the federal region of Pakistan, while the country has a diverse geographical landscape and numerous healthcare facilities that may present different challenges. To gain a more comprehensive understanding, similar research should be conducted in other regions and hospitals. Additionally, the findings are specific to Pakistan's cultural, environmental, and educational context, which may not apply to other countries. However, this study provides valuable insight into the perspective of healthcare professionals in a low- and middle-income country (LMIC), contributing to the broader discourse on disaster preparedness in resource-limited settings.

Conclusion

The study highlights critical gaps in disaster preparedness among healthcare professionals at PIMS, as many reported lacking formal training, awareness of hospital disaster plans, or participation in drills, leading to low confidence in managing emergencies. Despite understanding the importance of preparedness, their limited exposure to structured training programs suggests a pressing need for improvement. A strong consensus among participants supported making disaster preparedness training mandatory, with a high willingness to engage in such programs. This underscores the necessity for healthcare institutions to implement regular, comprehensive training sessions, ensure staff are well-versed in disaster management protocols, and foster a culture of preparedness to enhance emergency response capabilities.

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