

**THE LEVEL OF EMERGENCY STRESS, PERCEPTION OF
PREPAREDNESS AMONG THE HEALTH CARE WORKERS
DURING FLOOD DISASTER IN PAKISTAN**

**Syeda Manal Fatima¹, Varda Imtiaz², Hassan Ghafoor^{3§}
and Ayesha Jabeen¹**

¹ Department of Psychology, Riphah International University,
Lahore, Pakistan.

² Department of Psychology, Islamia University of Bahawalpur,
Bahawalnagar Campus, Bahawalnagar, Pakistan

³ Department of Sociology, Bahauddin Zakariya University,
Bahadur-Sub Campus, Layyah, Pakistan

[§] Corresponding author Email: hassanlayyah@gmail.com

ABSTRACT

The main aim of the research is to study the levels of emergency stress, knowledge, and perception towards preparedness among the Health care workers in Pakistan. As of 2010, it was the biggest natural disaster in Pakistan. **Methodology:** A cross-sectional research design was used and data was collected through purposive sampling. The data was comprised of the three groups; in each group, 100 participants were recruited (Healthcare workers, Rescue 1122, and Volunteer Emergency Workers). Data was collected on a standardized scale (perceived stress scale and perception towards preparedness scale). A descriptive statistic and a multivariate analysis of variance were applied to check the statistical association. **Results:** As medical, rescue workers have always been on the front lines. A majority of the participants stated that they have the knowledge and are ready to aid flood victims, and that they have a strong feeling of job responsibility and self-efficacy. While volunteer emergency workers appear perplexed on some points and answer neutrally, the highest emergency stress score is for voluntary emergency response, while the lowest is for rescue 1122. Doctors are under moderate stress in an emergency. Rescue1122 respondents have the greatest score, while volunteer emergency responders have the lowest. **Conclusion:** These findings imply that local governments may prioritize the identification of health care providers who may be experiencing emergency stress as a result of flooding.

1. INTRODUCTION

Pakistan's health care system has changed in many important ways. There are 1201 hospitals, 5518 basic health units, 683 rural health centers, and 5802 dispensaries, 731 facilities for mother and child health, and 347 TB centers in the country (Kurji et al., 2016). The population of Pakistan is 220 million, and health care employees fulfilled their tasks as frontline workers. Pandemics, natural disasters, and their aftereffects are stressful for people who work in the medical field. HCW staff members care for patients affected by the public health emergency. Frontline healthcare workers are more likely to

experience mental health issues following natural catastrophes and pandemics (Mushtaque et al., 2021). Researches revealed that healthcare professionals' mental health has been significantly impacted by the COVID-19 pandemic, with rising rates of anxiety, sleep problems, mood swings, and exhaustion (Al-Wathinani et al., 2021). All emergency response systems should be prepared. Disaster preparedness includes planning at the state, institutional, and individual levels. Prior occurrences, institutional and individual preparedness, and family support all have an impact on how emergency responders evaluate their level of preparedness (Borunda, 2019). If a person feels physically uncomfortable or emotionally unable to face a crisis owing to a lack of experience, they may be afraid to take on risky jobs to save others and manage calamities (Sulaiman et al., 2019). According to various studies (Älgå et al., 2018; Baack & Alfred, 2013), employee confidence in a hospital is determined by its readiness. Hospitals may be prepared, but healthcare staff, such as nurses, may not be confident in their ability to respond. It's unclear whether medical staff members are prepared for a disaster or recognize the need of being prepared. Understanding healthcare workers' perspectives on disaster preparedness can aid in the development of operational strategies, such as training and drills on how to handle various sorts of disasters in both developed and developing countries.

Aim of the Study

On the sites of the flood affected areas medical campus and mobile medical units has been established and they are performing their duties for the flood victims' treatment. The purpose of the study was to evaluate the emergency stress and knowledge and perception of preparedness among the healthcare workers to work during the disasters.

2. RESEARCH METHODOLOGY

In the current study was quantitative research in nature and cross-sectional design was used to get the numerical representation of the healthcare workers. Purposive sampling technique was used to collect the data.

2.1 Research Participants

In the current study, the data was comprised of three groups (MBBS Doctors, Emergency Responders (Rescue 1122), and Volunteer Emergency Responders). 100 health care workers who are dealing with the flood victims as frontline workers were recruited in the present study. In the study, 100 emergency responders like Rescue 1122 (divers, ambulance personnel, medical technicians) were recruited in the study, along with 100 volunteer emergency responders who are providing shelter and food to the flood victims.

2.2 Research Instruments

- 1) **Demographic Sheet:** In the current study socio-demographic information was obtained to the study participants. In which their gender, age, function, and working experience in an emergency unit were asked by the participants.
- 2) **Perceived Stress Scale:** PSS assesses stress by asking ten questions. The questions assess a person's life as chaotic, unpredictable, or unmanageable. The

test consists of direct questions about stress. Respondents indicate how frequently they experienced each emotion for each item (range 0–4). The reliability of the scale was Cronbach alpha 0.83 (Cohen et al., 1983).

- 3) **Perception towards Preparedness:** It is a seven items scale, in which participants' knowledge and perception was assessed. It is a 5-point likert scale. The reliability of the scale was 0.79 (Sultan et al., 2020).

2.3 Procedure

From August 1 to August 20, 2022, people from the Flood Zone area of south Punjab (Dear Ghazi Khan, Taunsa, and Layyah) were asked to join. Informed consent was obtained from the participants. Both questionnaires and basic socioeconomic data were collected, and the privacy of the participants was respected while the data was being collected. The study was carried out in accordance with the "Declaration of Helsinki" and the "Convention on Human Rights and Bioethical Principles".

2.4 Statistical Analysis

On the demographic data, a descriptive statistic was applied by using SPSS (statistical package for social sciences) v.25. A multivariate analysis of variance was used to compare the groups in order to test for the presence of emergency stress. Similarly, multivariate analysis was used to examine the knowledge and perception of preparedness across the three groups.

3. RESULT OF THE STUDY

Table 1
Socio-Demographic Characteristics of the Healthcare Workers (N=300)

Variables	Doctors f (%)	Rescue 1122 f (%)	Volunteer Emergency Respondent f (%)	Total f (%)
Gender	Male 68 (68%) Female 32 (32%)	Male 100 (100%) Female 0 (0)	Male 75 (75%) Female 25 (25%)	Male 243(81) Female 57(19)
Age of the Respondent				
25-35	48 (48%)	65 (65%)	45 (45%)	52.6%
36-45	28 (28%)	31 (31%)	32 (32%)	30.4%
46-55	24 (24%)	4 (4%)	23 (23%)	17%
Role at Duty				
Leader	35 (35%)	45 (45%)	25 (25%)	35%
Executor	65 (65%)	55 (55%)	75 (75%)	65%
Experience in Emergency	Yes 55 (55%) No 45 (45%)	Yes 85 (85%) No 15 (15%)	Yes 25 (25%) No 75 (75%)	Yes 55% No 45%

Note: f= Frequency, %= Percentage

According to Table 1, the current study's sample consisted of three groups (doctors, Rescue 1122, and volunteer emergency responders), with 81% being male and 19% being female. The majority of participants (52%) were between the ages of 25 and 35. In the flood catastrophe restoration, 35% served as leaders and 65% served as executors. The majority of the participants had prior experience working in emergency departments.

Table 2
Health Care Workers Level of Knowledge and Perception
towards Preparedness during Flood Disaster (N=300)

Statements	Disagree	Neutral	Agree	S.Agree	Sig-value
1. My function is essential to the flood management of my organization.	-	D- R- E 12(4%)	D 78% R 15% E 64%	D 22% R 85% E 24%	0.001
2. The mobile hospital/ rescue ambulance is well-equipped to deal with a flood.	-	D 16% R - E 10%	D 37% R 51% E	D 47% R 49% E	0.021
3. During a flood, I am mindful of my duties for managing the hospital.	-	D- R- E-	D 47% R 68% E 61%	D 53% R 32% E 39%	0.001
4. I am knowledgeable enough to oversee the care of flood victims.	-	D- R- E 28%	D 55% R 33% E 31%	D 45% R 67% E 41%	0.001
5. I am aware of how the hospital handles flooding according to regular operating practice.	-	D- R- E 41%	D 65% R 55% E 34%	D 35% R 45% E 25%	0.034
6. I am comfortable staying in hospital when a flood occurs.	D 87% R 96% E 71%	D 13% R 4% E 29%	D- R- E-	D- R- E-	0.020
7. I have faith in my capacity to handle a flood as a caregiver.	-	D- R- E-	D 76% R 57% E 51%	D 24% R 43% E 49%	0.013

Note: S.Disagree= Strongly Disagree, S.agree= Strongly Agree, D= Doctor,
R= Rescue 1122, E= Voluntary Emergency

Table 2 assessed participants' knowledge and perceptions of preparedness to work during a flood. As medical, rescue workers have always been on the front lines. Majority of the participants stated that they have the knowledge and are ready to aid flood victims, and that they have a strong feeling of job responsibility and self-efficacy. While volunteer emergency workers appear to be perplexed on some points and answer neutrally.

Table 3
Multivariate Effect on Emergency stress and Perception of Preparedness
under three groups of Health care Workers (N=300)

	Doctor	Rescue	VER			
Variable	(n=100)	(n=100)	(n=100)			
	m SD	m SD	m SD	f	p	η^2
1. Emergency Stress	5.23 2.1	2.7 1.02	7.61 3.22	9.21**	.001	.032
2. Knowledge towards Preparedness	3.8 1.99	5.9 2.43	3.11 1.07	5.52*	0.035	0.22
3. Perception of Preparedness	2.9 1.14	4.6 2.1	2.6 1.43	9.35**	.001	0.33

Note: VER= Voluntary Emergency Respondent, m= Mean, SD= Standard Deviation, η^2 = Effect Size, p= Significance, $p= 0.05^*$, $p=.001^{**}$

Table 3 shows how the study variables (Emergency Stress, Knowledge of Preparedness, and Perception of Preparedness) differ among healthcare providers. The highest emergency stress score is for voluntary emergency response, while the lowest is for rescue 1122. Doctors are under moderate stress in an emergency (Pillai's trace =.430 $F(3,296) = 9.21$, $p = 0.001$, $\eta^2 = .032$). On the spectrum of readiness knowledge, Rescue1122 respondents have the greatest score, while volunteer emergency responders have the lowest. Perceptions of preparation the greatest mean score belongs to Rescue 1122, while the lowest belongs to volunteer emergency responders.

4. DISCUSSION AND CONCLUSION

In terms of flood preparedness and rehabilitation knowledge and perception, the majority of participants have a positive attitude. Keeping an eye on the situation and putting a stop to the negative attitude Professional emergency responders, Rescue 1122 responders, and volunteer emergency responders all reported higher levels of positivity. People with good coping skills who served in the COVID-19 emergency units may be lured to jobs in healthcare and emergency services. Furthermore, training and assistance from coworkers and supervisors may aid in the promotion of positive attitudes and coping abilities (Spoorthy, 2020; Fatima et al., 2022). The sense of purpose in one's work is equally vital. Hospitals are prepared to respond successfully, according to 84% of respondents. Many men claimed to be familiar with their roles in the hospital's functioning following a flood, despite the fact that only 78% of respondents were. Women in Pakistan were less confident, but more realistic about the dangers of flooding. A clear understanding of emergency response roles and organizational frameworks has been seen as an effective company collaboration strategy. As instructed, health care and emergency responders assisted people in need. While these workers are experiencing high levels of work-related stress, they may benefit from knowing they are contributing to the solution, giving them a sense of purpose and meaning. If all stakeholders took part in a well-designed and practiced inter-agency all-hazards emergency response, HCWs at multiple hospitals would feel more confident in their experience, skills, and abilities (Lim et al., 2013; James, 2021). The grading system for the checklist showed that 75% of all HCWs had moderate-to-high levels of skill.

In this survey, 85 % of males believed they were more familiar with the hospital's standard operating procedures in the flood scenario. 75% of participants felt confident in their ability to assist flood victims, as measured by their perceptions of their knowledge and competence. 65.5 % of respondents were concerned about their personal safety, such as the hospital's ability to survive flooding. In an Australian study (Corrigan & Samrasinghe, 2012), health care workers expressed concern about their own degree of preparedness. According to the study, physiotherapists and non-emergency nurses had negative responses. During a disaster response, just a small number of staff was able to discern their roles (Hendrickson et al., 2021).

In examining the emergency stress and perception towards preparedness we found the significant differences in the three groups. According to our findings, Pakistani health care employees experience moderate levels of emergency stress, which is comparable to those of emergency responders. Other evidence suggests that the worldwide epidemic is doing the most havoc on health-care workers (Dube et al., 2018). According to Spoorthy et al. (2020) found that Indian and Chinese healthcare personnel who treated COVID patients had greater levels of emotional stress, depression, anxiety, and insomnia. Similar findings were discovered in the United States, the United Kingdom, and Pakistan (Gebbie et al., 2013; Chutiyami et al., 2022) Another study revealed that healthcare professionals reported feeling fatigued and burned out, 86% anxious, 75% stressed, and 75% having difficulty sleeping (Iqra Mushtaque et al., 2022). Recent research has connected emergency-related stress to psychiatric symptoms and a desire to leave among law enforcement, firefighters, and healthcare workers (NISHIOKA et al., 2018). Moreover, 90% of participants agreed that flood catastrophe criteria, as well as hospital staff training on these guidelines, should be implemented. Numerous studies have shown that such flood preparation advice is required.

This is, to the best of our knowledge, the first study of Pakistan to look into the flood preparedness of healthcare professionals, rescue employees (Rescue 1122), and volunteer emergency personnel. According to the findings of this study, Emergency Responders (Rescue 1122) and Health Care Workers are only minimally agitated by their flood-related work tasks. Volunteers who respond to emergencies are subjected to higher levels of stress than professionals. The survey also revealed that Pakistani healthcare providers were well prepared to address flood disasters and deliver appropriate solutions. According to our research, the majority of HCWs are confident in their hospitals' ability to respond to flooding disasters successfully. The majority of participants (75%) displayed moderate flood disaster preparedness skills due to Pakistan's climate and geographic location.

5. RESEARCH LIMITATIONS

There are few limitations of the present study. Due to the cross-sectional design of the data, it is impossible to draw definitive conclusions regarding the causal relationship. In future studies, it would be excellent to collect information on prior stress exposure and post-stress exposure. Exposure to flooding by individuals' past flood experiences may also be prejudiced. All of the participants were from the South Punjab region of Pakistan, which is another limitation.

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