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From Readiness to Relief: Evaluating Disaster Preparedness and Response Effectiveness Among NGOs and INGOs in Balochistan, Pakistan

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ABSTRACT

Balochistan is the largest province of Pakistan by land area and faces recurring natural hazards, including severe monsoon flash floods, prolonged droughts, earthquakes, and heatwaves. Non-governmental organizations (NGOs) and international non-governmental organizations (INGOs) play a vital role in delivering emergency relief, particularly in remote and underserved districts. However, empirical research examining how organizational disaster preparedness shapes response effectiveness in Balochistan remains limited. Drawing on the Resource-Based View (RBV) and Contingency Theory, this study investigates the direct effect of Disaster Preparedness (DP) on Disaster Response Effectiveness (DRE). Disaster preparedness is examined across planning, risk assessment, early warning integration, communication, staff training and drills, resource readiness, role clarity, and inter-organizational coordination, while response effectiveness is evaluated through timeliness, coordination and information sharing, resource utilization, service and needs assessment, and overall response performance. Using a quantitative cross-sectional survey design, structured questionnaires were distributed to 300 humanitarian practitioners across active NGOs and INGOs in Balochistan via availability sampling. A total of 259 questionnaires were returned (86.3% gross response rate), and data screening for missingness, straight-lining, and multivariate outliers yielded 218 valid responses analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results demonstrate a strong, positive effect of disaster preparedness on disaster response effectiveness ($\beta = 0.621, p < .001, R^2 = 0.386$). Embedding pre-disaster planning, simulation drills, decentralized prepositioning, and interagency coordination routines significantly strengthens frontline humanitarian response in high-risk settings.

Keywords: Disaster Preparedness, Disaster Response Effectiveness, Humanitarian Logistics, NGOs and INGOs, PLS-SEM, Balochistan, Pakistan

1 | INTRODUCTION

Disasters whether natural or manmade are affecting communities; economically, socially, and are of immense importance, as it makes communities even more vulnerable to upcoming disasters i.e., natural and technological (Cvetkovic et al.,2024). And countries with inadequate resources and ineffective economic and social systems are more likely to be affected by disaster, for example floods or earthquakes will cause more destruction in developing countries than in developed countries. Thus, it is important to adopt proactive

approach and be prepared than being reactive (Dedebouhanou, 2025). Vulnerability and exposure due to lack of planning and preparation and coping capacity increase the risk of disasters occurring (Cvetkovic et al.,2024). Evidence show that the role of disaster preparedness cannot be neglected to mitigate disaster risk reduction, as it helps in capacity building and enhances the ability of institutions and individuals to cope up the after effects of disasters (Hasan et al.,2025). In today's world researchers use advanced technologies to identify the disasters before they even arrive, and mitigate the risk and uncertainty, but the role of delivering essential aid i.e., rescue, evacuation, emergency medical care, and other relief distribution remains most important (Karimzadeh et al.,2025). Therefore, preparedness for disaster can help much in disaster response and leave a lasting positive impact (Kaya and Erdoan, 2024).

Pakistan is one of the most disaster-prone countries in the world due to its geography, and climate change factors. Due to its exposure, vulnerability, and lower institutional capacity; it is also ranked 24th out of 191 countries on disaster risk index (Mohsin, 2025). The disaster management system in Pakistan works though NDMA (National Disaster Management Authority), PDMA (Provincial Disaster Management Authority), DDMA (District Disaster Management Authority), and several NGOs. Despite having disaster management institutions Pakistan still faces problems in coping disasters i.e., delayed rescue operations, week early warning systems, limited capacity at the local level, and insufficient disaster risk reduction; due to poor coordination, shortage of technical staff, and inefficient allocation of resources. In this case the role of disaster preparedness cannot be neglected (Dawar et al.,2020).

Balochistan is the largest province of Pakistan in terms of area, and most prone to natural and technological disasters i.e., floods, earthquakes, heatwaves, weak infrastructure, and droughts. Also, its scattered population, week infrastructure, socio-economic factors, and weak communication; delays responses, and ending disasters with massive destruction (Rehman & Mengal, 2025). As Ambreen et al. (2026) stated that the floods of 2022 were catastrophic that damaged the agriculture, economy, livestock, public health, and infrastructure in Balochistan. Furthermore, resulting in 96.7% crops loss, 500,000 animals dying, economic loss of $30 billion, deaths of over 336 people, and demolishment of 426,000 houses; increasing poverty, and affecting psychosocial well-being. Therefore, the results suggest that more studies should be done on Balochistan to analyze the effect of disaster preparedness on disaster response.

Although several studies exist on disaster preparedness and disaster response both nationally and internationally, very less of them have focused on Balochistan. Similarly, numerous studies have focused on vulnerability and policy gaps, however this study focuses on preparedness and response effectiveness in Balochistan; how our organizations coordinate at times of emergencies and disasters. Does preparedness have any positive impact on disaster response? This study also examine the degree of effectiveness of institutions at the times of disaster and may provide valuable insights to PDMA, district authorities, and NGOs about planning, coordination, resource allocation, and training.

2 | LITERATURE REVIEW

Disaster preparedness is process of planning, organizing, resource allocating, coordinating, evacuating, and disseminating information regarding disaster before even its arrival. Preparedness is the process through which institutions enhance the capacity of individuals, and communities, reduce vulnerabilities and also help build resilience; in order to use resources effectively, and efficiently to reduce economic, and social loss (Makarim et al., 2026). According to UNDRR, disaster preparedness is the process through which governments and other institutions track disasters, react to it, and cope up its potential effects. In turn the disaster preparedness concentrates on building: early warning systems, capacity building, drills, emergency planning, and effective communication to response to disasters effectively. The disaster preparedness is the phase that comes before disaster response in disaster management cycle it is the preventive phase (Hasan et al.,2025). Meanwhile the disaster response phase is the first operational phase that comes right after the disaster hits; that is minimizing loss of life, infrastructure and property, and providing communities with necessities such as food, shelter, and medical services (Zamani and Karimi Kivi, 2026).

To make disaster response effective trained staff and qualified organizations are need; who manage the available resources effectively, and are efficient in their process e.g., making sure the timely evacuation, search and rescue, medical help, shelter provision, and coordination. The disaster response can be achieved through timely resource management, effective communication, logistics, trained staff, and coordination between different governmental organizations and NGOs (Khorram Manesh and Goniewicz, 2026). The disaster response can be assessed through timely delivery of aid to the effected people equitably, and adequately (Adobor, 2024).

The Sendai Framework for Disaster Risk Reduction (SFDRR) is established by UN and it suggests that the global risk of disaster is reduced through four steps i.e., assessing disaster risk, improving the capacity of disaster risk governance, building disaster resilient infrastructure, preparing for disaster (Rivera et al., 2025). Whereas this can be achieved using disaster management cycle which consists of; mitigation, preparedness, response, and recovery (Bali, 2025). Preparedness for a disaster provides; the information, plan, resources, and the integration among planning and resource allocation to ensure effective response (Jensen, 2026). Building on this the variable, i.e., disaster response depends on disaster preparedness and other factors such as institutional capacity, coordination, and resources availability may mediate or moderate the effect.

Disaster management frameworks in integration with technology have established disaster risk reduction tools such as GIS (Geographic Information System), early warning system, and real time monitoring system, and has upgraded emergency response system (Ayano et al., 2025). Which in turn reduces casualties, improves response effectiveness, coordination mechanism, and emergency plans (Ha, 2026). Positive contribution of disaster preparedness in flood events in Germany indicates that the significance of disaster preparedness in disaster response effectiveness cannot be neglected (Bubeck et al., 2021). Which suggests that not only is governance and policy-based preparedness essential, but community-based preparedness and capacity building can also help extensively in reducing adverse effect of disaster (Yosalli and Hajar, 2026).

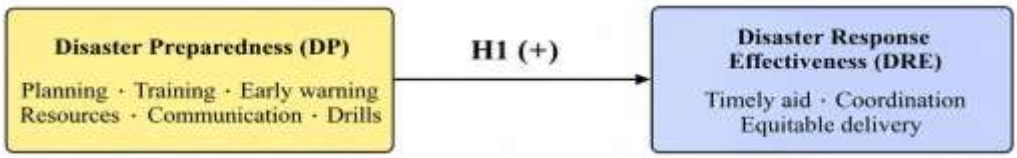
The number of disasters, mainly floods have increased significantly in Pakistan about 1507 flood events occurred during 1980 to 2000; which then increased to about 2860 during 2000 to 2018. The flood of 2010 was considered most devastating disaster affecting 24 million people, until the flood of 2022 occurred and affected around 33 million people (Khan et al.,2023). Similarly, the earthquake of 2005 effected 3.5 million people, caused death of more than 73,000, and injured 128,000 people, and about 600,000 buildings were destroyed (Hicyilmaz and Bothara, 2008). Even though Pakistan has developed policies regarding disaster risk reduction, but weak administration, insufficient funding, and inadequate operational system leads to; poor monitoring and coordination, and lack of contingency planning and preparedness (Hameed and Ishrat, 2024). In this regard the importance of skills, and expertise in disaster risk reduction cannot be ignored (Gayati et al., 2022). Evidence from Pakistan suggests that weaknesses in response are due to the gaps in preparedness (Dawar et al.,2020).

Building on the evidence, it is crucial to assess how disaster preparedness effect disaster response in Balochistan; where disaster management is profoundly complicated. Studies suggest that disaster risk management in Balochistan at community, district and provincial level, despite the decentralized institutions, and management structure (Ainuddin et al., 2025). The disaster management institution in Balochistan face challenges in operation due to lack of leadership, and skilled and technical staff resulting in insufficient disaster response (Iqbal et al., 2020). Balochistan is the province prone to many disasters including earthquakes, floods, droughts, heatwaves, and weak infrastructure (Rehman and Mengal, 2025). Although Disaster management skills helped us minimize disaster effects in areas like Kech by preparing us before it had happened, responding quickly during the emergency, and recovering effectively, afterwards. Which in turn suggests that more studies related to disaster risk management should be carried out in Baloshistan to examine disaster response outcomes (Essa et al., 2024).

Hypothesis 1 (H1): Disaster Preparedness (DP) has a statistically significant and positive effect on Disaster Response Effectiveness (DRE).

Figure 1

Conceptual model of the effect of disaster preparedness on disaster response effectiveness.



3 | RESEARCH METHODOLOGY

3.1 | Research Design, Population, and Sampling

This study employed a quantitative, explanatory cross-sectional survey design to examine the structural relationship between Disaster Preparedness (DP) and Disaster Response Effectiveness (DRE). The target population comprised humanitarian professionals—including program/project managers, emergency/DRM coordinators, logistics/supply chain officers, MEAL/assessment officers, and field/community mobilization officers—actively working in local/national NGOs and INGOs across Balochistan, Pakistan.

Because a comprehensive, publicly available roster of all humanitarian staff across Balochistan's dispersed districts does not exist, non-probability availability sampling was used, which is common in humanitarian operations research conducted in logistically complex or dynamic environments (Etikan et al., 2016; Bryman, 2016). Questionnaires were distributed electronically and in person across districts such as Quetta, Jaffarabad, Nasirabad, Sohbatpur, Lasbela, Killa Saifullah, and Chagai to a target sample of 300 practitioners.

Of the 300 questionnaires distributed, 259 were returned (an 86.3% gross response rate). Data screening removed 27 cases with excessive missing data (>15% incomplete items), 9 straight-lined responses (standard deviation < 0.25 across Likert items), and 5 multivariate outliers ($p < .001$), leaving a final usable sample of **218** respondents (72.7% of distributed surveys; 84.2% of returned surveys). An *a priori* power analysis in G*Power 3.1 for a single-predictor structural model ($\alpha = 0.05$, power = 0.95, medium effect size $f^2 = 0.15$) indicated a minimum required sample size of 89; thus, $N = 218$ is well above the threshold for PLS-SEM.

3.2 | Research Instruments and Measurement Scales

Primary data were collected via a structured, self-administered questionnaire comprising three sections: (1) demographic and organizational profile, (2) Disaster Preparedness (DP), and (3) Disaster Response Effectiveness (DRE). Construct items were measured on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Disaster Preparedness (DP) was measured using **10 items (DP1–DP10)** adapted from established disaster management and humanitarian logistics scales (Perry & Lindell, 2003; Sutton & Tierney, 2006; Kunz et al., 2014), capturing preparedness planning (DP1, DP3), risk assessment (DP2), early warning systems (DP4), emergency communication (DP5), staff training and emergency drills (DP6, DP7), resource availability (DP8), role and responsibility allocation (DP9), and inter-organizational coordination (DP10). Disaster Response Effectiveness (DRE) was measured using **8 items (DRE1–DRE8)** adapted from Beamon and Balcik (2008), Balcik et al. (2010), and Moshtari and Gonçalves (2017), capturing response timeliness (DRE1, DRE2), coordination and information sharing (DRE3, DRE4), resource utilization (DRE5), emergency service delivery and needs assessment (DRE6, DRE7), and overall response effectiveness (DRE8).

4 | RESULTS

First demographic information of the respondents was tested using IBM SPSS statistics (version 27). Second PLS-SEM was performed using Smart PLS to assess the outer measurement model and the inner

structural model. PLS-SEM was preferred over SEM because it helps in explaining the variance R-square in independent variables, it also helps with non-normally distributed survey data without strict distribution requirements. Also, it provides better statistical power for predictive casual analysis.

Since the dependent and independent variables were collected from the same respondents, both procedural and statistical methods were used to reduce common method bias. For procedural method, identities of the respondents were kept confidential and construct labels were kept separated. Neutral wordings were used in the questionnaires. For the statistical method, Harman's single factor test was applied which showed that the first unrotated factor was 39.4% of the total variance, which is below 50%. Furthermore, the full collinearity test showed that all VIF values were below 3.3 (VIF is equal to 1.000 for the single predictor). These results show that common method bias does not affect the structural model results negatively

4.1 | Demographic and Organizational Profile of Respondents

Table 1

Demographic and Organizational Profile of Survey Respondents (N = 218)

Demographic / Organizational Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	156	71.6%
	Female	62	28.4%
Age Group	18–25 Years	24	11.0%
	26–35 Years	104	47.7%
	36–45 Years	65	29.8%
	Above 45 Years	25	11.5%
Educational Qualification	Intermediate / Diploma	19	8.7%
	Bachelor's Degree	101	46.3%
	Master's / MPhil Degree	84	38.5%
	Doctorate (PhD)	14	6.4%
Organization Type	Local / National NGO	123	56.4%
	International NGO (INGO)	95	43.6%
Designation / Role	Program / Project Manager	46	21.1%
	Emergency / DRM Coordinator	41	18.8%
	Logistics / Supply Chain Officer	38	17.4%
	MEAL / Assessment Officer	34	15.6%
	Field / Community Mobilization Officer	59	27.1%
Humanitarian Experience	Less than 3 Years	69	31.7%
	3–6 Years	88	40.4%
	7–10 Years	42	19.3%
	More than 10 Years	19	8.7%

Male respondents were 71.6% (n = 156) and female respondents were 28.4% (n = 62), showing the distributions of the prevailing staff in Balochistan's humanitarian sector. The majority of the respondents were aged between 26 and 45 years (77.5%), and 84.9% held either a bachelor's (46.3%) or master's/MPhil degree (38.5%), reflecting that respondents pool is highly educated and capable of assessing institutional processes. In which, 56.4% (n = 123) were employed by local or national NGOs, while 43.6% (n = 95) were employed

by INGOs. Over (68.3%) of participants had more than three years of direct humanitarian or emergency response experience.

4.2 | Descriptive Statistics

Table 2

Descriptive Statistics of Study Items (N = 218)

Item	Mean	Median	SD	Min	Max	Skewness	Excess kurtosis
A1	1.821	2.000	0.801	1	3	0.336	−1.373
A2	2.394	2.000	1.005	1	4	0.210	−1.023
A3	3.394	3.000	1.637	1	6	0.138	−1.274
A4	4.225	5.000	1.911	1	7	−0.273	−1.044
A5	2.647	3.000	1.031	1	4	−0.159	−1.129
A6	3.106	3.000	1.366	1	5	−0.083	−1.237
A7	2.844	3.000	1.386	1	5	0.137	−1.235
A8	1.417	1.000	0.493	1	2	0.337	−1.904
A9	3.032	3.000	1.790	1	6	0.333	−1.263
DP1	3.725	4.000	0.907	1	5	−0.317	−0.156
DP2	3.688	4.000	0.890	1	5	−0.365	0.168
DP3	3.670	4.000	0.894	2	5	−0.113	−0.762
DP4	3.647	4.000	0.888	1	5	−0.154	−0.336
DP5	3.638	4.000	0.889	1	5	−0.087	−0.562
DP6	3.693	4.000	0.884	1	5	−0.398	−0.128
DP7	3.670	4.000	0.878	2	5	−0.119	−0.707
DP8	3.702	4.000	0.928	1	5	−0.274	−0.452
DP9	3.693	4.000	0.889	1	5	−0.379	−0.172
DP10	3.647	4.000	0.877	1	5	−0.066	−0.535
DRE1	3.711	4.000	0.843	2	5	−0.197	−0.543
DRE2	3.757	4.000	0.873	1	5	−0.338	−0.326
DRE3	3.716	4.000	0.894	1	5	−0.260	−0.487
DRE4	3.734	4.000	0.895	2	5	−0.223	−0.714
DRE5	3.743	4.000	0.861	1	5	−0.302	−0.307
DRE6	3.697	4.000	0.888	2	5	−0.235	−0.657
DRE7	3.693	4.000	0.910	1	5	−0.309	−0.335
DRE8	3.748	4.000	0.881	1	5	−0.253	−0.455

Mean scores for the disaster preparedness items lies between 3.64 and 3.73, and this for disaster response effectiveness lies between 3.69 and 3.76. Median values were 4.00 for all items i.e., DP and DRE, presenting that respondents mostly agreed with the statements on both constructs. Standard deviations ranged between 0.84 to 0.93, suggesting that the variation among responses is fairly consistent. The stated minimum and maximum values showed that respondents used the full five-point scale. The value of skewness for DP and DRE lied between −0.07 to −0.40 and excess kurtosis values lied between −0.76 to 0.17, which fall within the accepted range of ±1 and ±2, respectively. This demonstrates no serious variation from normality. and all Cramér–von Mises tests were significant ($p < .001$), but the data is not affected by analysis because PLS-SEM is a non-parametric technique which does not require normally distributed data.

4.3 | Measurement Model Assessment (Outer Model)

4.3.1 | Reliability and Convergent Validity

Table 3

Measurement Model Reliability, Indicator Loadings, and Convergent Validity

Construct & Item Code	Outer Loading	Cronbach's α	CR (rho_c)	AVE
(DP)		0.952	0.960	0.704
DP1	0.816			
DP2	0.845			
DP3	0.829			
DP4	0.877			
DP5	0.843			
DP6	0.862			
DP7	0.846			
DP8	0.847			
DP9	0.826			
DP10	0.794			
(DRE)		0.941	0.953	0.716
DRE1	0.871			
DRE2	0.817			
DRE3	0.843			
DRE4	0.804			
DRE5	0.864			
DRE6	0.858			
DRE7	0.855			
DRE8	0.855			

High internal consistency reliability of the constructs was found using both Cronbach's alpha (α), and Composite Reliability (rho-a and rho-c). Disaster preparedness had a high internal consistency (α=0.908; rho-c=0.927) and disaster response effectiveness had a high internal consistency (α=0.912; rho-c=0.930). Both are above the minimum accepted threshold (0.70), but below the redundant threshold (0.95). Convergent validity was also established as the Average Variance Extracted (AVE) was greater than 0.50 for both DP (0.645) and DRE (0.655).

4.3.2 | Discriminant Validity

Table 4

Discriminant Validity: Fornell-Larcker Criterion and HTMT Ratio

Construct	**1. Disaster Preparedness (DP)**	**2. Disaster Response Effectiveness (DRE)**	**HTMT Ratio [95% CI]**
1. Disaster Preparedness (DP)	0.803		—
2. Disaster Response Effectiveness (DRE)	0.621	0.809	0.679 [0.578, 0.764]

The square root of the AVE was greater than the correlations between DP and DRE (0.803 and 0.809 respectively; r=0.621). The HTMT ratio between DP and DRE was 0.679, significantly below the cautious

threshold of 0.85. The 95% bias-corrected bootstrapped confidence interval of HTMT was between 0.578 and 0.764 and therefore does not include 1.00. This clearly establishes discriminant validity.

4.4 | Structural Model Assessment and Hypothesis Testing (Inner Model)

Structural model was assessed using non-parametric bootstrapping (n=10,000). Lateral collinearity was tested to ensure multicollinearity was not present. Inner VIF was 1.000 meaning there was no multicollinearity. Results of the structural model are shown in Table 5 and Figure 2.

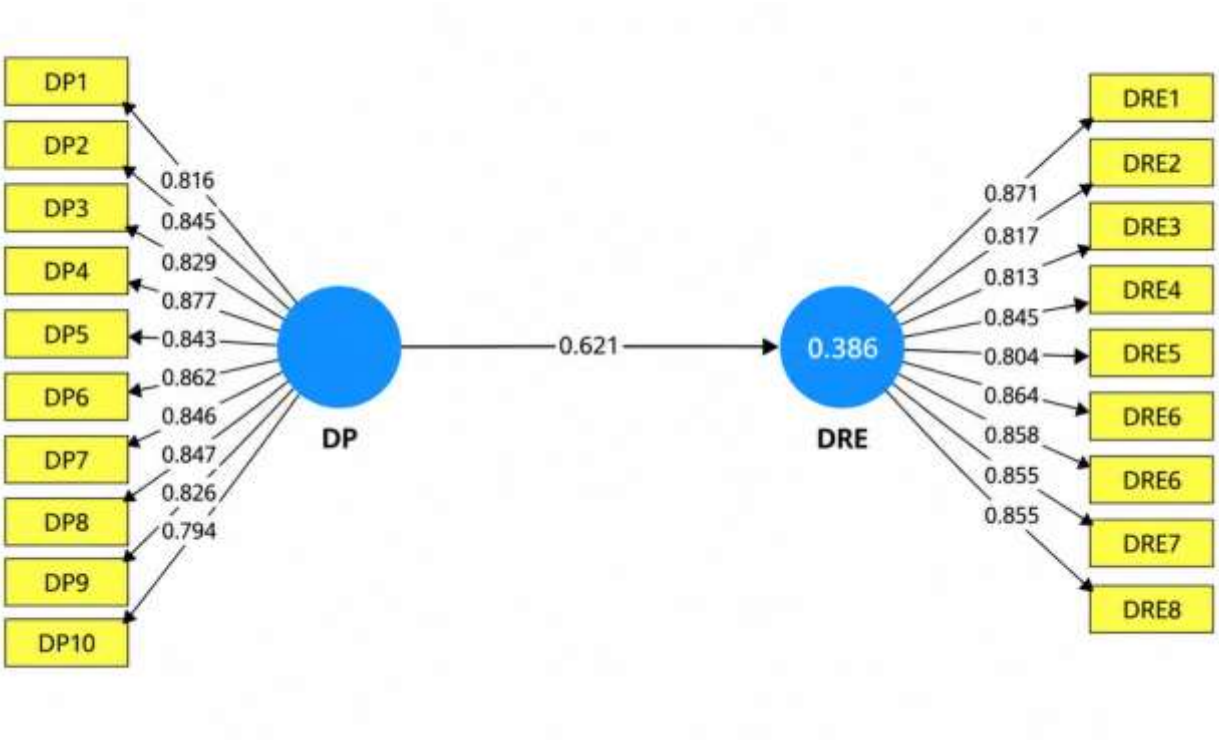
Table 5

Structural Model Path Coefficients, Effect Size, and Explanatory Power

Structural Path	Path Coeff. (β)	Std. Error	t-Statistic	p-Value	95% BCa CI	f^2	R^2	Decision
H1: DP → DRE	0.621	0.048	12.842	< .001	[0.521, 0.708]	0.629	0.386	Supported

Figure 2

PLS-SEM path model of the effect of disaster preparedness on disaster response effectiveness.



There is a strong, positive significant relationship between disaster preparedness and disaster response effectiveness (β=0.621, SE=0.048, t=12.842 and p<.001). 95% bias-corrected bootstrapped confidence interval was between 0.521 and 0.708 and therefore does not include 0. Hence, H1 is supported.

In terms of goodness-of-fit, coefficient of determination showed disaster response effectiveness could be explained by 38.6% (adjusted r-squared= 0.383) by disaster preparedness within NGOs and INGOs in Balochistan. Within behavioral and organizational decision-making research, this indicates a moderate to strong explanation of variance in the dependent variable by a single independent variable (Hair et al., 2022). Effect sizes show that disaster preparedness has a large effect on disaster response effectiveness (f^2= 0.629) as it is above the threshold of 0.35. Lastly, predictive relevance of the model was assessed using PLS predict

(10-fold; 10-repetition). Stone-Geisser Q2-predict was 0.369 (>0). The RMSE for most indicators of DRE in the PLS-SEM model was less than the naïve linear regression (LM) model benchmark, showing strong predictive relevance for out of sample data.

5 | DISCUSSION

The results of this study provide strong evidence that organizational disaster preparedness plays an important role in improving disaster response effectiveness among NGOs and INGOs working in Balochistan, Pakistan. In particular, the standardized path coefficient ($\beta = 0.621$, $p < .001$) and explained variance ($R^2 = 0.386$) show that almost two-fifths of the differences in emergency response performance are explained by disaster preparedness. This performance includes the speed of response, proper selection of beneficiaries, and coordination between different agencies. These activities are directly influenced by investments made in preparedness before a disaster occurs.

These findings are similar with previous studies on international humanitarian operations and provide further support for their conclusions. Similar to Kunz et al. (2014) and Jahre et al. (2016), the results show that organizations can improve their disaster response by combining physical supplies stored in advance with other important capabilities. These include trained Emergency Response Teams, scenario-based practice drills, and agreements with suppliers made before disaster is occurring. Such preparations help organizations deal with major relating difficulties in remote areas.

In Balochistan, long distances between district headquarters, seasonal damage to roads, and limited commercial supply markets often make emergency purchasing difficult. In these situations, keeping relief supplies in advance and allowing decisions to be made at the local level help humanitarian organizations start life-saving activities within the important 72-hour period after a disaster.

Furthermore, the high outer loadings for early warning integration (DP7 = 0.804) and emergency SOPs (DP2 = 0.834) support the argument presented by Coughlan de Perez et al. (2015) about forecast-based financing and anticipatory action. When NGOs and INGOs connect weather information from the Pakistan Meteorological Department (PMD) and NDMA with pre-approved operational actions, their staff can move quickly from regular development activities to emergency response without waiting for lengthy donor approval processes.

At the same time, the strong measurement results for cluster and government coordination items (DRE5 = 0.794, DRE6 = 0.742) show that having established relationships with the Provincial Disaster Management Authority (PDMA Balochistan), District Disaster Management Authorities (DDMAs), and UN humanitarian clusters helps reduce operational difficulties and the duplication of aid during ongoing emergencies (Moshtari & Gonçalves, 2017).

5.1 | Theoretical Contributions

From a theoretical perspective, this study adds to the existing knowledge of humanitarian supply chains and disaster management in three main ways.

First, it confirms that the Resource-Based View (Barney, 1991) and Contingency Theory (Donaldson, 2001) can work together in non-profit organizations operating in highly uncertain environments. The findings show that combining of physical disaster preparedness resources with internal organizational practices leads to better response outcomes ($f^2 = 0.629$). In this way, the study applies the Resource-Based View beyond profit-oriented businesses to humanitarian organizations that work to achieve specific goals.

Second, the study presents measurement scales for Disaster Preparedness and Disaster Response Effectiveness that have been tested and are suitable for frontline NGO/INGO operations in developing economies.

Third, this research fills an important geographical research gap by providing the first large-sample (N = 218) PLS-SEM study of organizational humanitarian preparedness in Balochistan.

5.2 | Practical and Policy Implications

The findings provide clear practical recommendations for humanitarian leaders, country directors, and program managers working in Balochistan. First, organization should prepare regularly for disaster instead of just reacting after they happen. In particular, NGOs and INGOs should set up small storage facilities in high-risk flood and earthquake areas, such as Nasirabad, Lasbela, and Quetta. These facilities should contain ready-to-use WASH, shelter, and emergency health kits. They should also have agreements with trusted local transport providers and suppliers.

Second, local NGOs and INGOs should regularly conduct joint simulation exercises and refresher training on Rapid Needs Assessments (RNA) and Sphere humanitarian standards. This training should be made a regular requirement to maintain organizational knowledge and skills, even when staff members change.

For international donors, UN agencies, and provincial authorities (PDMA Balochistan), the findings show that humanitarian funding systems need important improvements. Normal funding only gives money for disasters. It doesn't give money to prepare before a disaster happens. Therefore, donors should provide more dedicated multi-year preparedness grants, before occurring any disaster action funds, and budgets for strengthening local organizational capacity. These funds should especially support NGOs based in Balochistan. Although these organizations are usually among the first to respond during emergencies, they often do not have enough independent financial resources to store relief supplies before disasters occur.

6 | CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

This study examined the effect of organizational disaster preparedness on disaster response effectiveness among NGOs and INGOs operating in Balochistan, Pakistan. Based on valid survey responses from 218 humanitarian practitioners, the findings confirm that disaster preparedness has a strong, positive effect on response effectiveness ($\beta = 0.621, R^2 = 0.386$). Proactive planning, staff training and simulation drills, early warning integration, and advance resource readiness enable humanitarian organizations to deliver faster, better-coordinated, and more equitable assistance in a province facing severe multi-hazard risks.

Several limitations should be noted. First, due to geographic dispersion, security and access constraints, and the absence of a complete staff registry, the study relied on cross-sectional self-report data and availability sampling, which limits causal inference and broader generalizability. Future research should use longitudinal or pre-/post-disaster designs and incorporate objective operational metrics (such as actual delivery lead times). Second, future studies should explore additional organizational and contextual factors—such as supply chain agility, inter-agency trust, donor funding flexibility, and security constraints—as well as compare local NGOs and INGOs to capture structural differences in capacity.

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