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Article

Disaster Risk Assessment and Management Challenges Faced by University Libraries: A Case Study of Disaster-Prone Region Hazara, Pakistan

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ABSTRACT

The Hazara region in Khyber Pakhtunkhwa, Pakistan, is highly susceptible to disasters. This research investigates the types of disasters that can affect university libraries in the Hazara region and the challenges they pose. The study population consisted of university library staff from the Hazara region. Using purposive sampling, 15 semi-structured interviews were conducted with library staff in key positions. There are 5 universities in this region. The qualitative data, subjected to thematic analysis, highlighted principal themes and emerged subthemes. Two major themes were identified for the disaster types — natural and man-made disasters — while 3 major themes were identified for the challenges — funding, lack of policies, and lack of planning. The findings include natural and man-made disasters, cyberattacks, a lack of institutional policies for disaster mitigation, insufficient budgets, inadequate roads and bridges, and limited awareness of how to handle disasters. Based on these findings, specific recommendations and practical implications are provided, including policy development, training, community engagement, early warning systems, infrastructure development, resource allocation, and security systems. The study advocates for a practical approach to disaster management. The study's conclusions and recommendations have implications for library specialists, policymakers, and shareholders in the Hazara Region and beyond.

KEYWORDS

Disaster risk assessment (DRA); challenges in the implementation of disaster management; academic libraries; hazara region; Pakistan

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1. Introduction

Disaster Risk Assessment (DRA) is indispensable for all organizations. According to UNDRR (2017), DRA is "a method to define the nature and degree of disaster risk by examining possible hazards and assessing current settings of exposure and vulnerability that could harm people, property, or services." The Hazara region, encompassing several districts in KPK, Pakistan, is vulnerable to a range of disasters, with floods, landslides, earthquakes, and epidemics, which can destroy academic libraries, compromising cultural heritage and educational resources.

Subsequently, RDA becomes even more important for disaster-prone areas, such as the Hazara Region in Pakistan. Furthermore, the safety of cultural items held in distinct collections of academic libraries is rarely discussed within academic literature. "The connection to international disaster risk reduction policies is rarely discussed within academic literature"(Garnett, 2021, p. 12). This research identifies a significant knowledge gap by observing disaster risk assessment and management in university libraries in the Hazara Region, where libraries play a vital role in supporting education and research. Thus, the disaster risk assessment and management framework prepared for disaster-prone areas at the national level can contribute to the international framework of disaster risk assessment and management plans.

The Hazara region of KPK in Pakistan encompasses several districts, such as the upper and lower Kohistan districts, Haripur, Abbottabad, Mansehra, Battagram, Kolai-Palas, Allai, and Torghar district. The main cities and towns of this region include Balakot, Naran, Kaghan, Ayubia, Mansehra, Abbottabad, and Haripur. The region is challenged by various types of vulnerabilities and disasters, including floods, landslides, earthquakes, droughts, epidemics, insect infestations, heatwaves and coldwaves, forest fires, and terrorism. "Unfortunately, there seems to be neither the will nor the initiative on the part of the government to address the situation" (Asad & Hussain, 2014, p. 53). The importance of this research lies in its contribution to developing guidelines for disaster risk management in libraries and in confirming that university libraries are well-equipped to handle potential disasters. Unlike previous works, this study focuses on the Hazara Region and provides context-specific recommendations for mitigating disaster risks.

History reveals that disasters have destroyed many libraries, while academic libraries are mandatory institutions for educational growth. (Samea, 2015) stated that "the university library is the most important retrieval institution." In this context, it must be saved from disasters. Since the Hazara region in Pakistan is prone to disasters, it is crucial to conduct a disaster risk assessment that takes into account the challenges that can create hurdles for disaster management.

The research objectives of this study are to identify disasters harming university libraries, highlight challenges, and recommend mitigation strategies, ultimately contributing to disaster risk reduction and management in the region.

Globally, there is a wealth of worthy literature on disaster management available in libraries (Yazid et al., 2025). Oyeniran (2023) emphasized that disaster management plans for libraries, combined with regular observation, are crucial; at the same time, staff training and raising consciousness are likewise significant. Despite significant international focus on disaster management in libraries, research in Pakistani libraries, particularly in KPK, is relatively underrepresented (Shah et al., 2019). This literature gap raises questions about the need for significant work in Pakistan on disaster risk assessment and management in libraries, particularly in the aftermath of the 2005 earthquake. Through this study, a significant contribution will be made to developing guidelines for disaster risk management and ensuring that university libraries are well-equipped to handle potential disasters.

1.1. Review of Literature

Historically, disasters have repeatedly happened, impacting numerous organizations. So it is necessary to be equipped to conduct a risk calculation to comprehend the challenges that can impact disaster management. Researchers and librarians need to recognize the importance of disaster

management (Matthews, 2016). Research also highlights that "Effective disaster management is also the library's responsibility to protect collections that belong to society at large" (Abidin et al., 2024). (Muir & Shenton, 2002, p. 116) explain that although "risks can never be completely removed, much can be done to mitigate their effects". Government and non-government organizations can help face disaster threats (Yazid et al., 2025). Recent studies have emphasized the need for libraries to adopt a proactive approach to disaster management, such as (Dada, Hamza, & Mohammed, 2025) stated that collaboration is mandatory for the libraries and information centers in Nigeria to promote the regular and practical training sessions on disaster response and recovery. Similarly, a study done on the academic libraries of Ghana suggested that the management of academic libraries should give special attention to the causes of disasters (Edward, Dodzi, & Wilson, 2025). As long as the Hazara region in Pakistan is concerned, here libraries faced growing pressures from a variety of natural and man-made disasters that can result in loss. The two major types of disasters that can affect libraries are natural and man-made disasters.

1.2. Natural Disasters and Their Impact on Libraries

The Hazara Region, situated in northern Pakistan, is vulnerable mainly to a range of predictable threats, including floods, earthquakes, landslides, strong winds, and storms. This state continually keeps the libraries at risk due to their proximity to major fault lines, making them especially susceptible to earthquakes. As (Mir et al., 2025) highlighted, Pakistan has undergone numerous high-magnitude quakes in the last hundred years, resulting in substantial damage to educational institutions. Library buildings in this area, especially the older ones, are at high risk of crumbling during powerful earthquakes, which can lead to the loss of vital resources and hinder academic operations. The 2005 Kashmir earthquake actually brought this faintness to light. This potent earthquake, a 7.6 on the Richter scale, caused significant damage in northern Pakistan, particularly affecting educational institutions (Shaw et al., 2008). Many university libraries, mainly those in the Hazara region, were damaged, lost books, and had their facilities disturbed. According to (Ani & Ganaie, 2017)" libraries in Kashmir are prone to disasters like floods; yet, none of the libraries seems to be prepared to bear or cope with such a disaster". They further stated that no measures were taken before or after the floods to protect their resources and libraries. In 2010, Pakistan was hit by one of its poorest floods, which took a toll on schools and libraries. According to Swathi (2015), "The 2010 Pakistan floods started in July 2010 following heavy monsoon rains in the Khyber Pakhtunkhwa, and affected the Indus River basin. Approximately one-fifth of Pakistan's total land area was underwater, and it was further reported that the 2005 earthquake and the 2010 flood in Pakistan had broken all disaster records. Pests, such as rodents, insects, and termites, silently but progressively damage academic libraries. Unlike rapid catastrophes, these beings slowly damage books, furniture, and paper documents. (Rasaki et al., 2023) stated, "The menace of pest infestation is a disturbing situation posing serious threats to university libraries", and further stated that "apart from the damage and destruction of collections, pests constitute psychological and health hazards to library users and personnel" (p. 12).

Rodents target book bindings, and termites can damage bookshelves; therefore, finding them early is critical. (Naikal & Sahu, 2023) stated" it is the responsibility of the libraries to preserve the old and rare printed sources of information for the future generation" (p. 91). Kuzucuoglu (2014) stated that risk assessment should be done considering the frequency of incidents, duration of disasters, library items and their numbers, as well as the number of staff and building, etc. Libraries are also a place of work, and following this legislation, alertness should be improved with protection and training activities. (Hussain, 2019) explained that libraries are under threat due to natural and man-made reasons. These libraries should be prepared for disasters, building preventive maintenance, and training programs.Effective work on early warning systems was done by (Sukhwani, Gyamfi, Zhang, AlHinai, & Shaw, 2019) the authors theorized numerous obstacles restraining the effective warning systems which can be categorized into knowledge, technology and institutional aspects. The authors selected the examples of floods disasters form Highlands (Malaysia), North Kyushu (Japan) and Sri Lanka. Another case study was done in disaster-prone country Bangladesh by (Kabir,

Hossain, & Haque, 2022) the researchers highlighted how the coastal communities have developed their resilience capacity. This study assessed the local peoples' resilience against natural disasters.

1.3. Man-Made Disasters and Their Impact on Libraries

Man-made disasters such as war, terrorism, and other hazards arising from human activities. Warfare and battles have overwhelmingly shaped human history. For instance, England and France were engaged in a prolonged conflict from 1300 to 1400 A.D., a conflict considered the largest war in the world's history up to that point. Libraries are not just at risk from natural disasters; they also face real dangers from human activities. "Emergencies and risks caused by human effects also threaten libraries" (Kuzucuoglu, 2022). Things like crumbling buildings, cyberattacks, vandalism, theft, fires, pollution, and digital issues can disrupt how a library operates. These issues can be costly, damage books and resources, and hinder people's access to the information they need. To defend academic libraries, we need clever plans, practical solutions to problems, and clear instructions that are consistently followed. Regarding library remodeling, Trinkley (1992) mentioned that the library building works as the first line of defense for the library collection against a wide range of abuse. Hence, , essential for librarians to understand how to develop a comprehensive security plan for their library building. The Safe Library uses real-world, accurate tools to make every library facility a better, safer place to work (Albrecht, 2023). Moreover, libraries should consider adding climate-controlled spaces to protect their collections from humidity and leaks (Strebel, 2012). As more library possessions go digital, cyber threats are a big concern. Hackers are targeting digital archives, online databases, and management systems. This situation is resulting in data leakages and jammed access to academic materials. (Matankar, 2024) mentioned that academic libraries spend a significant amount of money on digital resources; if security is not maintained correctly, these libraries can be accessed by unauthorized users. So there is an increasing need to be aware of cybercrimes and the ways to avoid them. (Bhavsar & Bhavsar, 2017, p. 38) stated that the "technological apparatus does not commit crime; people do," therefore, access controls, hardware identification, and disconnecting critical library applications should be devised. There is a rising problem in universities where students are intentionally damaging the library books and resources. This includes actions such as tearing out pages, writing in books, detaching barcode stickers, and damaging reference materials. (Bhavsar & Bhavsar, 2017, p. 28) concluded in their study that mutilation of library material is a serious issue in university libraries and should be subjected to penalties. Libraries should adopt new technologies, such as Radio Frequency Identification (RFID), to address these issues. Libraries are increasingly facing issues with deliberate harm to their computer equipment and software. Computer damage takes many forms, such as breaking screens, damaging keyboards, corrupting software, and causing physical damage to the network system. Disaster risk assessment and planning should be the most important aspect of library management, but in practice, this is a neglected field in librarianship (Morgan & Smith, 1997, p. 62). Therefore, it would be beneficial for libraries to utilize security cameras, strictly enforce ID checks for users, and regularly review their IT systems. Creating special rooms for digital resources with limited access can also be an effective way to reduce damage.

Previous studies on "disaster risk assessment and management in libraries" has highlighted the significance of understanding the exact challenges and measures to be taken such as (Edward, Dodzi, & Wilson, 2025). Four Case studies of specific countries are also mention by, (Dada, Hamza, & Mohammed, 2025) which are Nigeria (University of Jos), USA (Libraries in Texas, including the University of Houston Libraries), UK (British Library, UK) and Canada (University of British Columbia Library).

A critical appraisal of the present literature reveals that while there is a growing body of research on disaster risk management in libraries, there are still notable gaps in the literature. Mostly studies focus on the impact of disasters on libraries, while very less provide a comprehensive framework for disaster risk management. Furthermore, maximum studies are restricted to specific backgrounds or regions, and there is a shortage of comparative studies across different countries or regions. Another gap is that many studies are highlighting the importance of disaster management and preparedness in libraries but they are not providing any framework for implementation. So there is a great need

to provide a clear framework for disaster risk management in libraries, keeping in view the needs of different regions and contexts.

1.4. Conceptual Framework

A conceptual framework can be developed for disaster risk assessment and Disaster management of libraries based on the framework of "Sendai Framework for Disaster Reduction" (United Nations Office for Disaster Risk Reduction, 2015). This framework stresses the significance of understanding disaster risk, strengthening governance for disaster risk, capitalizing on the risk of disaster reduction, and improving preparedness and response for disasters.

2. Methods

A qualitative research approach was employed with in-depth Semi-Structured interviews. This exploration adopts a constructivist viewpoint, which shows how reality is shaped through social interaction (Creswell & Creswell, 2017). This constructivist lens was fit for this research as it aligns with the study goal of understanding the subjective experiences and implications that library professionals assign to disaster management in their organizations. This constructivist approach influenced the interview design by concentrating on semi-structured interview questions that stimulated participants to share their individual experiences and understanding of disaster management. This approach has an influence on interpretation as well, as we sought to identify patterns and themes that reflected the participants' constructed realities. We examined the data to cognize how library professionals make sense of disaster management. The data were examined using thematic analysis, a popular approach to qualitative data analysis. This method enables researchers to identify, analyze, and interpret patterns or themes within qualitative data (Braun & Clarke, 2006). Thematic analysis is a structured process that includes the following steps:

- Getting to Know the Data: This means transcribing our interviews and carefully reading all the responses.
- Creating Initial Codes: We will be looking for repeated ideas and marking important sections with labels.
- Looking for Themes: We will group connected codes into broader, overarching themes.
- Reviewing Themes: We are going back over the themes we have identified to make sure they fit and are relevant to what we have found.
- Defining and Naming Themes: We are making sure the themes are clearly defined and have names that accurately reflect their meaning, so everything makes sense.
- Producing the Final Report: We are putting together the final report, highlighting our findings with quotes and explanations to back them up.

We carefully chosen participants from 5 universities, with 2-3 participants from each university. The selection choice was based on purposive sampling, where we targeted library professionals in key or decision-making positions. We selected these participants because they are directly involved in disaster management and have valuable insights into disaster management. The names of the Hazara region universities are

- Hazara University, Mansehra
- Abbottabad University of Science and Technology
- COMSATS University, Abbottabad
- Pak-Austria Fachhochschule Institute of Applied Sciences and Technology, Haripur
- University of Haripur

During in-depth interviews, which permitted us to reach data saturation. we realized the saturation point after the 14th interview, and the 15th interview confirmed that no new themes were developing. For conducting interviews, each one-on-one conversation lasted approximately 30 to 45 minutes and took place in a calm, comfortable spot within the participants' university to maintain privacy and minimize outside noise. To ensure that everything was culturally sensitive and easy to understand, the interviews were conducted in the language the librarians were most comfortable with. Before leaping in, everyone received the lowdown on what the research was all about and agreed to participate after being informed, following proper ethical guidelines. With their say-so, the discussions were recorded, which allowed the investigators to accurately emphasize the discussions while ensuring every word was accurately captured.

To minimize the bias, we adhered to all moral principles when collecting data for this research. Everyone involved was provided with complete information about the study's goals, techniques, and their right to choose whether to participate. They all decided to participate after understanding everything. To ensure everyone's privacy is safe, all personal details and answers were carefully protected and anonymized during the data analysis. The data analysis was conducted using a manual qualitative approach known as thematic analysis. This method enables the identification, understanding, and comprehension of the recurring patterns and themes within the data. We decided on thematic analysis because it provides a clear framework that is both structured and flexible enough to allow us to discover both the obvious and subtle meanings in what the participants had to say. This approach fits perfectly with our goal. Before participating, all individuals provided their informed consent. We ensured that each person clearly understood the research's aims, goals, procedures, and the time commitment required, as well as the location where their part of the research would take place. Audio recordings, transcripts, and similar materials are securely stored in password-protected files, accessible only to the researcher. Actual paper documents, such as consent forms, are stored in a filing cabinet to keep them out of prying eyes.To guarantee the reliability of our coding, we employed peer debriefing. Two researcher colleagues with proficiency in qualitative research go through our codes and themes, and we discussed all inconsistencies until we reached an agreement.

3. Results

This study considered 15 library professionals from five universities, each of whom holds a different role within their libraries or information services. Most of them (13) are men, and two are women. The list of participants, along with their allocated codes, age, gender, university name, and designation, is provided below.

Table 1. Participant Profiles

Sr.no	Codes	Gender	Age	Yearsof Service	University/ Institute	Designation
PI	DI	M	47	10	Hazara University, Mansehra	Deputy Librarian
P2	MS	M	49	8	Hazara University, Mansehra	Library Supervisor
P3	MN	M	46	9	Hazara University, Mansehra	Library Supervisor
P4	SJ	M	58	13	Abbottabad University of Science and Technology	Library in charge
P5	FA	M	38	7	Abbottabad University of Science and Technology	Library Supervisor
P6	MK	M	59	10	University of Haripur	Deputy Librarian
P7	MA	M	36	7	University of Haripur	Computer Technician
P8	TA	M	40	9	University of Haripur	Cataloger
P9	ZB	F	36	8	University of Haripur	Cataloger

P10	DS	M	44	12	Pakistan Austria Institute of Applied Sciences and Technology	Chief Librarian
P11	SU	M	34	6	Pakistan Austria Institute of Applied Sciences and Technology	Assistant Librarian
P12	MI	M	35	12	Pakistan Austria Institute of Applied Sciences and Technology	Assistant Super-visor
P13	NUD	M	51	13	COMSATS Abbottabad	Deputy Librarian
P14	ZK	F	33	8	COMSATS Abbottabad	Assistant Librarian
P15	MK	M	35	5	COMSATS Abbottabad	Library Assistant

3.1. Results of Types of Disaster

Disasters can be categorized into two forms. Both types, whether natural disasters or human-caused crises, are a risk to university libraries. Using a qualitative method, the following themes emerged from direct quotes of the participants.

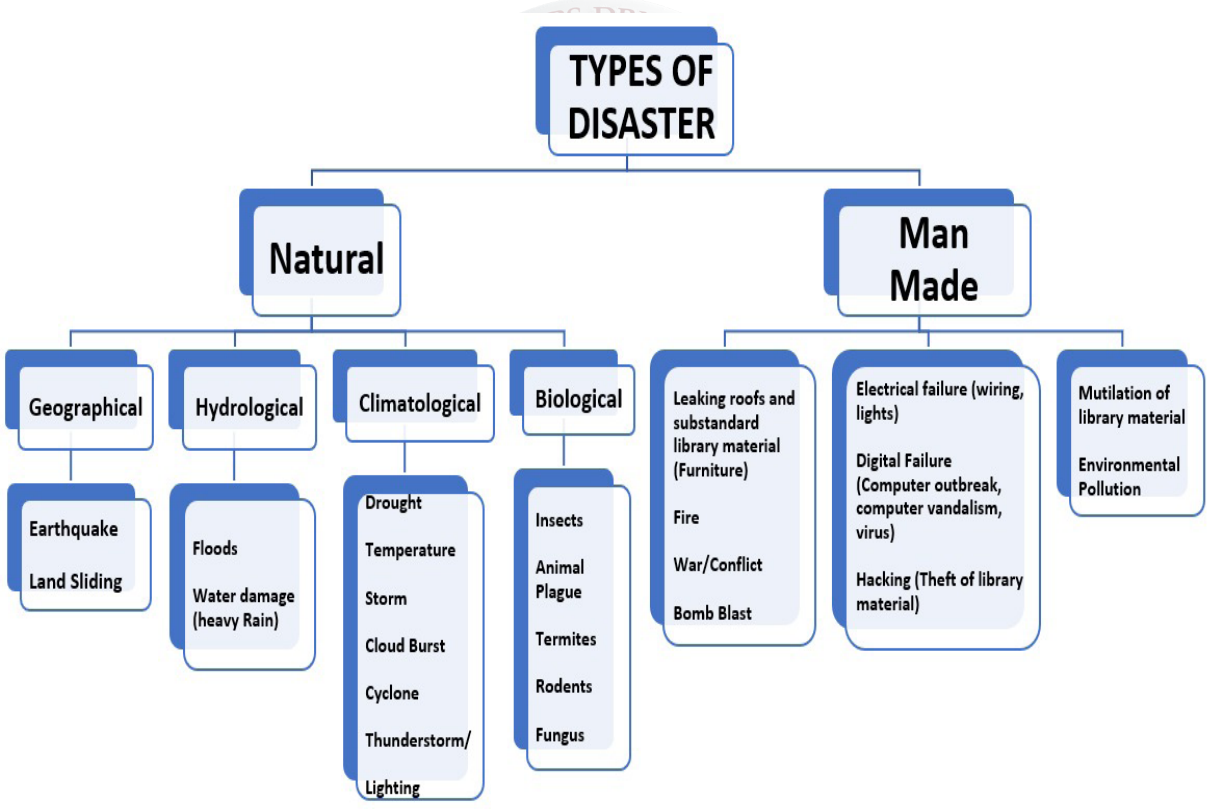


Figure 1. Classification of disaster.

3.1.1. Natural Disasters

Under the central theme of natural disasters, subthemes emerged, including geographical, hydrological, climatological, and biological disasters. The interview responses show that multiple natural disasters, including geographical, climatological, hydrological, and biological, are causing significant damage to infrastructure and the library collection.

- Geographical

Natural disasters can be a significant threat to libraries and their collections. These occurrences often result in physical damage and the loss of valuable collections." P2 (AS) shared, *"Our library building was already dealing with foundation problems, and after the earthquake, it became so unstable that we could not even go inside. ."* P10 (SH) worried. "*The building is not built to last, even after a small tremor; tiles started falling from the ceiling. If a stronger earthquake hits, we could lose everything in the blink of an eye."* P7 (NI) noticed: "*The earthquake caused the library floor to crack from the shifting ground. Now, some spots are uneven, and it is not safe for students to walk around."* P12 (FK) added: "*The library does not have good drainage. Whenever it rains hard, water builds up near the entrance, which makes it hard and risky to get inside."* P1 (DI) comment: *"We never had a plan in place for floods or earthquakes. We only started to think about disaster planning after we had already lost a big part of our collection."*

- Hydrological

Hydrological disasters, such as heavy rainfall, leaks, or flooding, can result in significant water damage. This can have a profoundly negative impact on library furnishings, causing the loss of valuable materials. Moreover, it creates ongoing headaches with maintenance and keeping things clean. P8 (TR) explained, *"Whenever it pours, the roof springs a leak, and water drops right onto the study tables and bookshelves. "We have to shuffle everything around just to try and keep things from getting soaked,"* P13 (MU) described *how the carpets and chairs in the reading area got completely drenched during the big storm last year. "They were never really dried out or cleaned up properly," they said, "and now they just smell damp and musty constantly."* P4 (SA) pointed out *that because the drainage around the building is so bad, "the whole library area ends up flooding. "Sometimes we even have to splash through puddles just to get inside," they noted.* P11 (NA) added, *"Our library is not set up for this kind of weather. We do not have any waterproof storage, and our shelves are not raised off the ground. So when the flood hit, even the books on the bottom shelves got soaked and were ruined."* P15 (MK) commented, *"The maintenance crew did what they could after the water damage, but we are still dealing with bugs and a really bad smell"*

- Climatological

These disasters include the harmful impacts of severe weather events, such as heatwaves, thunderstorms, and dry air. These factors can weaken the condition of books, reduce user comfort, and activate power surges that harm digital infrastructure. P15 (MK) stated, *"Disasters are not good at all; these are making their upkeep incredibly challenging."* P13 (NU) observed, *"Due to extreme heat, it is difficult for students to concentrate, thus hindering their ability to study effectively."* P6 (MK) discussed, *"We were very sad due to the recent thunderstorm, which caused a power surge, and unluckily, we lost some important data. We are still at risk because we do not have appropriate temperature control."* P3 (MN) mentioned, *"The bad time is going on another power surge during a storm, which broke our computer systems, and we lost important digital records."*

- Biological

These disasters include harm caused by living beings, such as insects, rodents, and homeless animals. These not only destroy physical items, such as books and documents, but also disturb electrical systems and compromise the cleanliness of the library. 12 out of 15 participants mentioned the biological issues. ." P9 (KB) observed, *"The wooden racks have termites. You can see the telltale powder near where the book's spine meets the shelf, proof that they're gradually consuming everything."* P6 (MK) said, *"Our library is severely lacking in pest control.."* P14 (FA) stated, *"We had to throw out a complete stack of journals. Nobody caught it until the damage was done."*

3.1.2. Man-made Disaster:

Man-made disasters are emergencies or damage caused by human actions, whether intentional or due to carelessness. In libraries, these kinds of problems can include fires, electrical issues, inadequate maintenance, vandalism, data breaches, and accidents caused by inappropriate storage and worn-out structures.

- Water Damage and Infrastructure Issues

This theme highlights the problems arising from insufficient drainage, and deteriorating furniture and library set-up. Such issues not only harm library resources but also create unpleasant and potentially hazardous learning spaces. P5 (FA) stated, *"The furniture in our library is in quite poor condition.* P3 (MN) explained, *"The cheap furniture here really makes it tough for students to study for long stretches"* P4 (SH) declared, *"A Proper drainage system around our library is not available"*.P10 (DS) described, *"They had to close off one of their library rooms as the ceiling caved in after years of neglect and water damage."*

- Fire Safety Concerns

This theme displays how libraries are at high risk in emergencies due to an absence of a basic fire safety program 9 of 15 stated fire safety concers. Simple things like fire extinguishers, alarms, and evacuation plans are often missing, and even the staff are often unsure of what to do in the event of a crisis. For example, P8 (TA) admitted, *"I doubt many of our staff would even know how to use a fire extinguisher if there was an actual fire."* P1 (MI) elaborated on this concern and said, *"Our fire safety is lacking, and we do not have basic smoke detectors."* P3 (MN) shared another issue*: "We don't have an evacuation plan, and we never practice any drill for any emergency."* P6 (MK) said, *"We had this one time where a small electrical spark started a fire in one of the library's storage areas"* P5 (FA) added, *"A few years back, a bomb exploded nearby. It shattered the library's windows and damaged books and computers inside."* P2 (MS) shared, *"We have never actually had a fire drill. I am pretty sure no one even knows where the closest emergency exit is located."*

- Security Threats and Political Unrest

This theme emerged when multiple participants showed their concern about external threats, such as governmental protests, unrest, or overall instability, that impact the library. These events can lead to vandalism, enforced closures, and threats to user safety. Eight of Fifteen reported this. P7 (MA) commented, *"When political tensions rise, both students and teachers steer clear of the library due to safety concerns."* P11 (SU) described, *"The library has found itself in the middle of protests. People have forced entry, disrupting the books and computers."* P10 (DS) observed, *"Occasionally, issues outside the university affect the library's schedule, resulting in unexpected closures."* KB (P9) chimed in, *"The security just is not cutting it. Someone broke into the library during a strike, and they trashed the computers."* FA (P12) explained, *"With all the upheaval lately, we're constantly getting last-minute orders to shut down the library. It's throwing a wrench in things for students who are studying for exams."* MK (P6) shared, *"We have had to cancel some library programs because of violent threats. It has been tough on everyone's spirit, and it limits access to the library."*

- Lack of Emergency Preparedness

This theme suggests that there are no plans in place for emergencies, whether natural disasters or those caused by human activities. P2 (MS) mentioned, *"We need to work on the emergency plan; currently, we are just facing the situations and working accordingly"*. P3 (MN) discussed, *"We need basic training for emergency procedures. We do not know how to react if anything unexpected occurs."* P1 (MI) stated, *"We have not practicing any drills. If a serious situation were to arise, we'd all be left wondering what actions to take."* P7 (MA) remarked, *"The library is seriously lacking. There are no first aid kits or emergency supplies available. It's as if nobody even considered what would happen in a real crisis."* P5 (FA) Recall, *"I brought up the topic of an evacuation plan during a safety meeting once, and not a single person could give me a straight answer. It makes you wonder."* P10 (DS) pointed out, *"Even the emergency contact numbers that are supposed to be visible are either outdated or just plain missing. We urgently need to revamp our entire emergency preparedness system."*

The results revealed that libraries are susceptible to various man-made disasters, including water damage, security threats, fire safety concerns, and inadequate emergency preparedness. These challenges pose significant risks. The main reason can be human actions or carelessness, highlighting the need for improved planning and preparedness.

3.2. Challenges

The themes and subthemes that emerged in response to the question of challenges faced by librarians are listed below, accompanied by a detailed analysis of the emerging themes and accurate quotes from the participants.

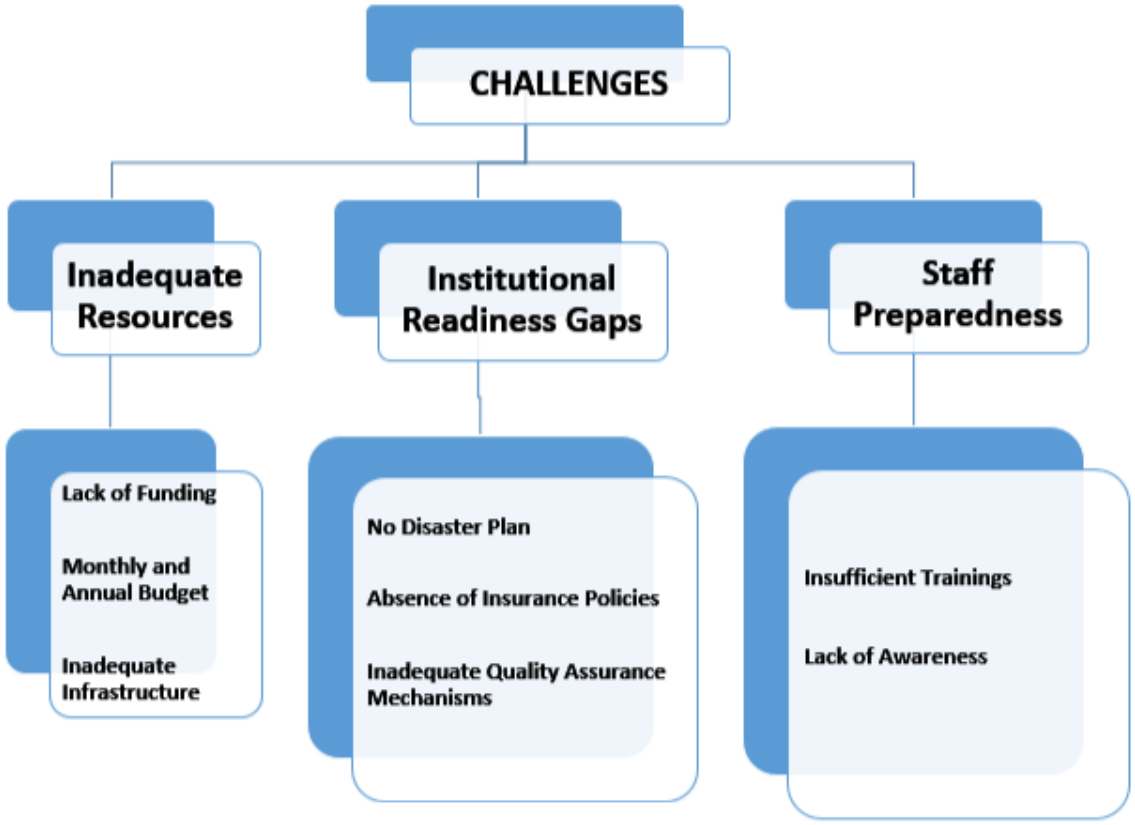


Figure 2.

3.2.1. Inadequate Resources

University libraries often struggle due to inadequate resources. This makes it difficult for them to prepare for and respond to emergencies. People discussed specific problems, such as not having money set aside for emergencies, having budgets that focus on the wrong things, and not having. Proper infrastructure All of these factors together make it harder for libraries to recover after a disaster

- Lack of Funding.

The participants highlighted that their institutions are working with very limited budgets. 13 of 15 mentioned the funding issue. These budgets are just enough to handle the day-to-day operations and do not allow for planning for unexpected situations. P1 (DI) commented, *"To be completely frank, we're only just scraping by each month to afford the absolute essentials for maintenance."* P4 (SJ) mentioned, *"We're not having any funds for unexpected emergencies."* P9 (ZB) shared, *"The big challenge is just to get enough money together to keep everything running, and no funds for future crises? That feels like a luxury we cannot even consider right now."* P13 (NUD): *"We have been trying to get a little more money to boost safety, but it feels like nobody's listening. It seems like other things always get prioritized over this."* P6 (MK): *"When something bad happens, we're unprepared. We have nothing saved up to help us through it, so we're always playing catch-up."* P3 (MN): *"After a disaster, we sometimes have to beg for donations or outside help, and that is just not a good way to do things long-term."*

- Monthly and Annual Budget

Respondents observed that budget allocations appear to prioritize routine operations, such as acquisitions and maintenance, over disaster preparedness and risk mitigation. P12 (MI) explained, *"When we're putting together the budget, we've never actually talked about setting aside money for disaster resilience."* P7 (MA) commented, *"In our meetings, the budget for the library is always a lower priority. It's frustrating."* P5 (FA) mentioned, *"I feel that we only talk about disaster management, but we never make it a serious issue, and we spend the budget on other university matters while the library is a lower priority."* P6 (MK) identified, *"The annual budget is for the purchase of new books and maintaining subscriptions, with little provision for disaster preparedness."* P15 (MK) elaborated, *"There is no dedicated funding set aside for emergency supplies like fire extinguishers or backup power during blackouts."* P3 (MN) shared, *"We urgently require a comprehensive financial strategy that incorporates disaster management, but it appears that those in leadership do not prioritize it."*

- Inadequate Infrastructure

Participants noted that library buildings are outdated and lack the necessary equipment to handle disasters. They are also missing regular safety checks and proper evaluations of the infrastructure. P9 (ZB) pointed out "*that they have frequent problems with water leaks. Unfortunately, they do not have a good system to remove the water, which means the books and furniture are at risk of being damaged".* P13 (NUD) explained, *"That the building is rather old and not updated regularly. They are concerned that if a big disaster hits, the building might not hold up very well".* P6 (MK) stressed *"the need for a system to review their policies regularly. They want a routine check-up and refresh of the library's disaster plans".* P6 (MK) commented, *"The library was not built with disasters in mind."* P6 (MK) further explained, *"It does not have any special features to protect it from things like earthquakes or floods."* P9 (ZB) mentioned, *"We don't have a system for checking up on our disaster readiness regularly."* P12 (MI) elaborated, *"We're missing things like evaluation reports and inspections to make sure our policies are working.".* Inadequate resources are a significant challenge for libraries in the Hazara region. The participants noted that their institutions operate on very limited budgets, prioritizing day-to-day operations over disaster management and risk mitigation. Ultimately, this has resulted in a lack of financial preparedness for emergencies, making it difficult for libraries to recover from disasters. So the key issues include: insufficient funds, 13 of 15 mentioned this issue. No weightage is given to disaster preparedness in the monthly and annual budgets, and the nonexistence of insurance coverage leaves libraries vulnerable to financial losses.

3.2.2. Institutional Readiness Gaps

Disaster management largely depends on having solid plans in place. These plans must be clear to follow, confirm that buildings can withstand significant damage, and protect important assets. Sadly, many university libraries in the Hazara region lack such plans. Because of this, they are at risk when bad things happen, whether caused by nature or by people. We will examine three primary challenges these libraries face: inadequate building structures, insufficient preparedness for disasters, lack of emergency plans, and inadequate insurance coverage. These responses show that there are no clear disaster management plans in libraries. Outdated buildings, inadequate equipment have raised multiple concerns. At the same time, the absence of quality assurance mechanisms, with irregular risk evaluation and safety checks, leaving the libraries vulnerable to disasters.

- No Disaster Plan

Several participants in the study reported that their libraries lack a clear, written plan for handling emergencies. As a result, things are disorganized, responses are slow, and it is challenging to handle emergencies efficiently when they arise. P1 (DI) said, *"It's tough for us because our library does not have an actual disaster plan in place."* P12 (MI) commented, *"When crises come up, we're totally improvised."* P3 (MN) explained, *"We have seen some potential risks, but it's taking way too long to get approval on what to do about them, and it's leaving us in a precarious situation."* P4 (SJ) mentioned, *"We don't have a written guide or any clear directions to follow when disaster hits."* P11 (MS) explained, *"We are still dealing with*

the aftermath of past problems. It's like we are always behind the eight ball because every single decision has to jump through a bunch of hoops. It makes everything move at a snail's pace." P15 (MK) stressed, *"When you don't have a plan, you are flying by the seat of your pants when emergencies pop up. Moreover, honestly, the solutions you throw together at the last second usually aren't that great."* P3 (MN) chimed in, *"We have tried to sound the alarm about getting ready for disasters, but it feels like nobody is really in a hurry to make the decisions that would help us steer clear of trouble."*

- Absence of Insurance Policies

The participants were worried because the library's belongings are not insured, which means the institution is in a very weak position if something bad happens. P1 (DI) said, *"We haven't insured our books, our digital stuff, or even the building we're in. So, if something really bad happens and we lose anything, we have to pay for it all ourselves."* P11 (MS) explained, *"It's a bit strange, but even though we have some valuable things in our collection, we don't have any insurance. So, if anything gets damaged or disappears, it's not protected."* P2 (MS) said, *"Insurance just is not something we think about, which is risky, especially since we've had problems with flooding and electrical faults in the past."* P8 (TA) mentioned, *"We have brought up insurance in the past, but the powers that be think it's just too pricey to keep up."*

P6 (MK) chimed in, *"It's funny. Every time something bad happens, we're kicking ourselves for not having coverage, but then nothing ever gets done to get it.*

- Inadequate Quality Assurance Mechanisms

Risk evaluations are infrequent or missing altogether, and most issues are handled after the fact rather than beforehand, putting libraries at a higher risk than necessary. P9 (ZB) explained, *"We don't have a system in place for regularly checking for potential disaster risks."* P1 (DI) commented, *"We don't have a specific person responsible for leading the response during a disaster. Frequently, our staff is left unclear about what actions they should take."* P6 (MK) pointed out, *"We rarely conduct practice drills or assessments to test our preparedness for emergencies."* P7 (MA) said, *"When emergencies pop up, we don't have a good way to communicate. People react in different ways, and things just become chaotic and slow."* P3 (MN) mentioned, *"We usually only look at risks after something bad has already happened instead of trying to stop it before it starts. Even small problems, like a dripping pipe, can take forever to report and fix because it's so hard to talk about them."* P13 (NUD) contributed, *"There is no system to figure out which areas are more at risk—we just wait until something happens and then jump in to fix it."*

3.2.3. Staff Preparedness

The actual problem is that when it comes to the management of disasters in their libraries, the staff is not prepared to handle the emergency situation.This theme shows how vague communication and inadequate emergency action plans can hinder responses and exacerbate crises. Here is a look at some exact examples of how this issue plays out:The key issues related to staff preparedness are insufficient training and a lack of awareness among staff, which lead to confusion and chaos during emergencies. Moreover, issue handling after the fact rather than beforehand, and the lack of regular assessments, are making the situation even more critical.

- Insufficient Trainings

Because there is no unified effort among different departments and staff, and students have not been adequately trained for emergencies, they are not prepared to handle such situations, thus making it more likely that chaos will ensue if a real emergency were to occur. P7 (MA) explained, *"To be completely truthful, we are not ready for emergencies. If something bad happened, most of us would not know how to react."* P11 (MS) pointed out, *"The staff in the library, the security personnel, and the administrative staff don't communicate effectively. This means it takes us a significant amount of time to respond to any disaster."* P13 (NUD) mentioned, *"We hardly ever do fire drills or emergency training exercises, so we're not prepared for anything."* P1 (DI) pointed out that *"Departments tend to work independently, and this makes it tough to coordinate a response if a real emergency unfolds."* P11 (MS) chimed in, saying, *"We don't have much training when it comes to managing risks or tackling a major disaster."* P7 (MA) wrapped things up by saying, *"If something like that were to happen, we don't have a specific team ready to handle it together."*

- Lack of Awareness

Because there is no unified effort among different departments and staff, the awareness level to handle the emergencies became a biggest challenge/. 13 of 15 states that they are not well aware of what to do and what not to do in emergencies. P7 (MA) explained, *"To be completely truthful, we are not ready for emergencies. If something bad happened, most of us would not know how to react."* P11 (MS) pointed out, *"The staff in the library, the security personnel, and the administrative staff don't communicate effectively. This means it takes us a significant amount of time to respond to any disaster."* P13 (NUD) mentioned, *"We hardly ever do fire drills or emergency training exercises, so we're not prepared for anything."* P1 (DI) pointed out that *"Departments tend to work independently, and this makes it tough to coordinate a response if a real emergency unfolds."* P11 (MS) chimed in, saying, *"We don't have much training when it comes to managing risks or tackling a major disaster."* P7 (MA) wrapped things up by saying, *"If something like that were to happen, we don't have a specific team ready to handle it together."*

3.3. Summary of the Analysis

Libraries face challenges in response to natural disasters and emergencies caused by human activities. It becomes necessary to prepare for such circumstances. This involves identifying potential risks, training staff on how to respond, enhancing library facilities, and protecting digital resources. Research has shed some light on the exact steps that can be taken, such as making buildings better able to withstand earthquakes and floods, using waterproof storage for valuable items, controlling pests, and enhancing cybersecurity to protect sensitive data.

Human activities are generating significant challenges for disaster preparedness. We are seeing issues arising from factors such as poor maintenance, fire hazards, vulnerabilities in our digital systems, and potential environmental pressures. Money exacerbates the challenges libraries face in preparing for disasters. Libraries often lack sufficient funds for emergency plans, safety measures, or assurance. When there's no money saved for these things, libraries struggle to recover after a crisis. Setting up special funds specifically for emergencies and obtaining good protection are extremely important for effectively handling problems. The research also highlights that disaster plans at libraries are missing some key elements, such as buildings that are not physically sound, ineffective rules, and a lack of guarantees. It is essential to address such issues by launching clear guidelines, systematic checks, and applying measures to protect the library.

4. Discussion

4.1. Findings and Discussion on Types of Disasters

This Study shows that university libraries face natural and man-made disasters, and both these types pose a danger to these institutions, affecting both physical books and digital resources, as well as the library's overall ability to function. On the other hand, libraries lack sufficient resources to deal with each disaster as it arises, without a clear plan of action (Matthews & Smith, 2016).

One of our discoveries was that disasters were predictable. Libraries in areas prone to natural disasters have implemented various measures to protect their collections and buildings. They have strengthened their structures, used waterproof storage, and shaped disaster response plans. However, there is still room for development when it comes to frequently checking for risks and training staff on how to respond in emergencies.

Libraries at universities are becoming targets of cyberattacks, underlining the importance of strengthening their cybersecurity. A recent example is the British Library being targeted by the Rhysida ransomware group, which highlighted the weaknesses in library systems. This attack resulted in a significant loss of data and severely disrupted operations, underscoring the need for stronger cybersecurity protocols and enhanced staff training (The Times, 2024). Along the same

lines, (Luo et al., 2023, p. 5650) found that many libraries struggle to protect their patrons' privacy due to insufficient staff training and a lack of necessary technical expertise.

As cyber threats become multifaceted, libraries have to invest in security systems that integrate manifold layers of protection. This includes measures such as using databases, confirming software, and identifying vulnerabilities in their networks. Smith's study highlights that training of library workers in digital risk management is necessary to reduce the chance of data breaches or cyberattacks (Smith, 2024).

Institutional policies are vital in mitigating the impact of disasters, but there is a notable lack of uniformity among universities in this regard. Some schools have meticulously laid out disaster recovery plans, while others operate without any formal guidelines, resulting in a scattered and reactive approach rather than a proactive one. Studies have shown that libraries with solid, pre-established disaster management policies recover more effectively and maintain their services running smoothly; meanwhile, libraries without a clear plan in place often find themselves grappling with extended periods of disruption (Antwi & Frimpong, 2020).

Budget and financial constraints were identified as a significant hurdle in our study. Many libraries cannot spend funds on staff training and the updating of resources. The American Library Association (ALA) noted in 2021 that inadequate finance is a persistent issue for many academic libraries, impeding their ability to develop long-term plans for disasters. Libraries having limited funding often have out-of-date security systems, insufficient disaster retrieval plans, and do not provide training to their staff, which increases their vulnerability to both natural disasters and human-caused threats.

4.2. Findings and Discussion on Challenges

Since the Hazara region in northern Pakistan is particularly vulnerable to various disasters, both natural and artificial. Earthquakes, landslides, floods, and even the collapse of buildings are all real threats. From looking at the research and seeing what is happening on the ground, a few big problems stand out:

Many communities just are not ready for disasters. They lack effective warning systems, people are not adequately trained on what to do, and emergency response plans are not up to standard (Khan, Bhatti, & Khan, 2020). The area is characterized by its mountainous terrain, and the roads and other infrastructure are relatively basic. This makes it extremely difficult to provide help to people quickly when something bad happens, which only exacerbates the situation (Atiqul Haq et al., 2024). Efforts to respond to disasters are frequently hindered because government bodies, non-governmental organizations, and local populations do not collaborate effectively, resulting in delays and wasted resources in providing aid (Lambin, Rasi, & Sharif, 2024). Disaster management and prevention plans are also not workable due to a lack of necessary funding and expertise (Shah et al., 2019). Many people lack accurate information about the dangers of disasters and how to prepare. Cultural and socioeconomic differences also make it more challenging for communities to participate in programs designed to reduce disaster risks (Khan, Khan, & Naseer, 2024, p. 30).

The research highlights the challenges of dealing with disasters in the Hazara region. It seems that there are some deep-rooted problems, including inadequate roads and bridges, insufficient resources, and the fact that many community members are not fully aware of what to do in an emergency. To tackle these issues, we need to take a big-picture approach, which means changing how things are done within the institutions responsible, ensuring that supplies and aid can reach their intended destinations more efficiently, engaging the community more effectively, and securing additional funding to make it all happen.

The region's rugged mountains and isolated communities make it tough for emergency responders to reach those in need, often slowing down rescue and relief efforts. The combination of poor roads and inaccessible areas makes it even more difficult to provide help to people quickly. Finding

alternative transportation methods, such as air evacuation or improving the road system, could help alleviate these problems (Islam et al., 2021, p. 50).

Studies indicate that incorporating disaster risk reduction tactics into regional policies and establishing specialized disaster management bodies could significantly enhance our resilience (Shah et al., 2020).

Community-based disaster risk management, or CBDRM for short, has proven effective in enhancing the ability of local areas to handle disasters. However, these programs do not always reach their full potential because sometimes people do not get involved enough, they lack sufficient knowledge about the risks, or cultural traditions get in the way. Research by (Hussain, Miraj, & Saddique, 2019, p. 120) displays that increasing participation at the local level by teaching people about risks, guiding students about disasters in schools, and providing training can meaningfully enhance community resilience.

The Hazara region faces a significant challenge in preparing for disasters, mainly due to a lack of funding and inadequate technology. Insufficient funding means they cannot invest in robust buildings, early warning systems, and programs to prepare for emergencies. Many local groups lack the necessary knowledge and equipment to manage disasters effectively. To address this, the government, international aid groups, and private companies must increase their financial contributions. This is the only way to ensure the region is prepared for whatever comes its way (Khan, Khan, & Naseer, 2024).

5. Conclusion and Recommendations

This study explains the vulnerability of university libraries in the Hazara Region to potential disasters. The findings indicate that libraries have inadequate resources, fewer preparedness plans, and insufficiently trained staff to mitigate disaster risks. The research also highlights the significance of adopting a practical approach to disaster management, which includes regular risk assessments, staff training, and allocating a budget for security systems and infrastructure. Bearing in mind these results, some essential takeaways emerge regarding how universities operate, the policies they create, and the research that remains to be conducted. Researchers could build on this study by comparing practices in other areas, examining which disaster planning methods are most effective, and assessing how these preparation efforts ultimately impact library services. Moreover, university libraries can enhance their resilience to natural and human-caused disasters, as well as their ability to recover, by addressing identified weaknesses and implementing preventive measures.

Recommendations derived from the findings include that university libraries need to develop disaster plans and update those plans regularly, encompassing backup response procedures and communication protocols. These libraries need to conduct regular risk assessments to identify potential threats and improve strategies to mitigate them. Moreover, Library staff should receive regular training on disaster preparedness, response, and recovery, including cybersecurity and digital risk management. Libraries should invest in robust security systems, including encryption, firewalls, and intrusion detection systems, to protect against cyber threats. At the top, university libraries should engage with the local community to raise awareness about disaster risks and promote disaster preparedness. They should also develop and implement institutional policies for disaster management, including clear guidelines for emergency response and recovery. By implementing these recommendations, libraries can mitigate the risk of damage and disruption, ensuring the continuity of their services. We also recommend that the university management and the Higher Education Commission of Pakistan establish task forces to oversee disaster management and allocate dedicated funding for disaster preparedness. Disaster risk reduction must be integrated into accreditation standards to ensure that universities prioritize disaster resilience. Moreover, the University management to set up institutional disaster management committees to coordinate response efforts. Our research findings align with the Sendai Framework's priority area of improving disaster preparedness for active response and retrieval. Pakistan can reduce disaster risk and promote a culture of resilience by integrating the DRA into the university's policies and procedures.

6. Limitations and Future Directions

The study has some limitations as well. First, the sample size of 15 participants may limit the generalizability of findings to the other regions of the country. Secondly, it is self-reported data and may be subject to social desirability and bias. The third is that the study's regional focus may not capture the perspectives of other regions of Pakistan, especially given their distinct socio-economic and socio-cultural differences. Future research should address these limitations by conducting large-scale studies with diverse samples and by using more objective measures for disaster risk assessment and management.

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