A STUDY TO HIGHLIGHT THE IMPACT OF DISASTERS ON STUDENTS' ACADEMIC ACHIEVEMENTS AT HIGHER EDUCATION INSTITUTIONS OF KHYBER PAKHTUNKHWA

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Abstract

This study investigated the impact of disasters on students' academic achievement in higher education institutions of Khyber Pakhtunkhwa (KPK). The research focused on how disasters disrupt learning, affect students' performance, and create emotional and academic challenges. A mixed-methods design was used, including surveys and interviews with university students and staff. The findings showed that disasters caused interruptions in classes, limited access to learning resources, reduced use of technology, and increased stress among students. These factors negatively affected academic achievement. Although universities provided some support, it was not sufficient to meet students' academic and psychological needs during and after disaster situations. The study highlights the need for stronger disaster preparedness plans, continuous academic support, mental health services, and improved digital facilities in higher education institutions. It recommends that policymakers and universities develop effective strategies to support students during future disasters.

Keywords: (impact of disasters, students' academic achievements, higher education Institutions)

1. Introduction

Experiencing various challenges brought by natural and anthropogenic disasters, higher education systems in all countries are influenced by systemic and multilateral challenges, such as

climate change. These incidents lead to infrastructure disruptions, population displacement, and generally create protracted misfortunes in education. The province, in which such acts occur most frequently, i.e., Khyber Pakhtunkhwa (KPK), Pakistan, due to its geographical and sociopolitical characteristics, has a higher education system that is more vulnerable to disruptions (Gulzar et al., 2020). The necessity to analyse the effects of disasters on different institutions and their stakeholders is evidenced by the extraordinary importance of education in rebuilding communities and enhancing Resilience in general. In KPK, calamities such as floods, earthquakes, and war have disrupted the continuity of the academic process, leading to the destruction of educational facilities and psychological stress for both students and faculty (Hashmi et al., 2019). Education has been a key area of regression in the region, particularly in remote and rural areas, where access to even basic education is scarce. For instance, Ahmed and Nawaz (2020) have demonstrated that following disasters, it is common to observe a correlation between increased dropout rates and challenges in accessing schools and other institutions of higher education, often due to financial constraints, displacement, or health-related issues.

Furthermore, educational inequalities are exacerbated by disasters that disproportionately affect vulnerable groups, namely females, children from low-income families, and people living in rural areas or conflict-affected areas. The aftershocks significantly impact these cohorts due to a lack of resources for recovery and continuity of education (Sahibzada & Khan, 2019). Khan et al. (2020) highlight that in the case of KPK, the gender based barriers are exacerbated in the post-disaster situation, which makes them prone to dropping out after sticking due to familial pressure, security apprehension, and financial insufficiency. The consideration of education as a mechanism for disaster recovery is a well-established process, and comprehensive studies explicitly addressing the impact of disasters on institutions of higher education in KPK are rare. The educational drive in this region, encompassing universities and technical colleges, plays a vital role in social and economic rehabilitation. Yet, research by Imran and Shah (2018) shows that while the higher education sector in KPK has adopted disaster resilience initiatives, these strategies often face underfunding and do not address the specific needs of regional institutions. The effects of disasters on the sustainability of higher education in KPK need to be examined in a multifaceted manner that incorporates physical infrastructure, social, microeconomic, and psychological aspects of education. Behind such challenges as the centralised understanding, the role of interplay between the policies and institutional support, the use of communism, and the well-being of the students and faculty expressed as a whole, influence recovery and reconstruction that develop favour among these is the Resilience of the education system (Mahmood & Butt, 2021). This paper aims to address this gap in the literature by providing a multidimensional analysis of the impact of disasters on higher education in KPK, as well as offering associated pragmatic advice for enhancing disaster preparedness, Resilience, and recovery in the area.

2. Review of Literature

Disaster resilience theory brings the capacity of systems (such as individuals, communities, and institutions) to survive, adapt to, and recover from the disruption caused by disasters to the fore. Norris et al (2008) define Resilience as "the ability of a system to absorb shocks while maintaining function". This definition has been adopted within educational contexts, where particular emphasis is placed on the ability of educational institutions and students to cope with, recover from, and adapt to disasters while maintaining academic continuity. Cutter et al. (2008) took this argument one step further by suggesting a model of place-based knowledge that is especially relevant for educational systems in disaster-prone areas. They assume that Resilience does not represent a static attribute, but rather encompasses continuous adaptation to new types of risks as they emerge. This includes reconstructing infrastructure, adjusting pedagogical practices, and dealing with students' and staff's psychological needs in higher education. The socio-ecological model of education emphasizes the interaction between individuals and theirir environme, highlightingting societal, cultural, and economic factors influencecstudents'riences and acatiing times of crisisduring Bronfenbrenner's (1979) socio-ecological theory has been extensively used to describe howvariables (such as disuch as disasters In relation to disasters, Yates and Jones (2020) suggest that the socio-ecological model is a valuable framework for analysing this effect, as well as how different tiers of influence (individual, family, institutional, and societal) interact and how that determines educational outcomes in times of disaster. For example, students' ability to continue their education after a disaster is not only a direct function of the disaster's impact but also of the accompanying support structures provided by their family, institution, and society. Educational Resilience refers to the ability of educational systems to maintain educational outcomes under adverse circumstances, in the face of disruptions or disturbances. Masten (2014) conceptualised educational resilience as the capacity to maintain academic outcomes via adaptation and response to adversity. Educational Resilience is the process of building systems that help students and faculty continue participating in dietary functions even during times of crisis. Ainscow et al. (2020) believe that resilience in education is a collective phenomenon. Institutions that encourage adaptive teaching practices, psychosocial support, and a recovery culture are better placed to recover and reduce educational disruptions quickly. This notion is particularly salient in the case of higher education institutions in disaster-prone areas, where resilience needs to be built not just at the individual student level, but for the entire educational community.

2.1 Research Objectives

1. To examine the extent to which disasters affect students' academic achievement in higher education institutions of Khyber Pakhtunkhwa.
2. To identify the major academic, technological, and psychological challenges faced by students during and after disasters.
3. To explore the support mechanisms provided by higher education institutions to help students cope with disaster-related academic disruptions.

2.2 Research Questions

i. How do disasters impact students' academic achievement at higher education institutions in Khyber Pakhtunkhwa?
ii. What academic, technological, and psychological challenges do students face during and after disasters?
iii. What types of support do higher education institutions provide to help students manage academic disruptions caused by disasters?

3.Methodology

This study followed a mixed-methods research design to examine the impact of disasters on students' academic achievements in higher education institutions of Khyber Pakhtunkhwa. The population included students enrolled in public and private universities across the province. A sample of students was selected using simple random sampling for the quantitative survey, while purposive sampling was used to select university staff and affected students for qualitative interviews.

Quantitative data were collected through a structured questionnaire measuring academic disruption, access to resources, and academic performance. Qualitative data were gathered through semi-structured interviews to explore students' experiences, emotional challenges, and the support provided by universities.

The quantitative data were analyzed using descriptive statistics (mean, percentage, frequency) and inferential statistics as needed, while qualitative data were analyzed using thematic analysis to identify key patterns and themes. The validity of the tools was ensured through expert review, and reliability was checked using Cronbach's Alpha. This methodology helped in gaining a comprehensive understanding of how disasters affect students' academic achievement in higher education institutions of Khyber Pakhtunkhwa.

3.1. Quantitative Data Analysis

In this section, we present a quantitative analysis of data collected through a questionnaire administered to 384 students who have experienced displacement. The questionnaire consisted of 35 closed-ended items that measured several variables related to the effects of disaster-related displacement on students' educational and learning achievements, emotional health, and social support. The responses were analysed using descriptive statistics to characterise the data, identify dominant trends, and answer the main research questions proposed by this study.

The questionnaire consisted of 35 closed-ended items, designed to measure students' experiences in various aspects, including the consequences of disaster-induced displacement on education, psychological health, and university assistance.

The data obtained from these items were analysed using descriptive statistics to summarise the data, establish trends, and provide answers to the key research question of this study.

The analysis is based on the following aspects:

1. Education Interruption: the extent to which education was interrupted for students regarding access and academic advancement.

2. Psychological Impact: Psychological and emotional suffering of displacement or distress caused by the impact of displacement on academic performance.

3. University Assistance: the extent to which the universities are assisting displaced students, whether that be through academic leniency, through access to psychological services, or through financial assistance.

4. Coping Mechanisms: the coping mechanisms applied by students to deal with the challenges faced during displacement.

**Section 1: Displacement Impact**

1: "The disaster I experienced (e.g., flood, earthquake, conflict) had a significant impact on my ability to access education."
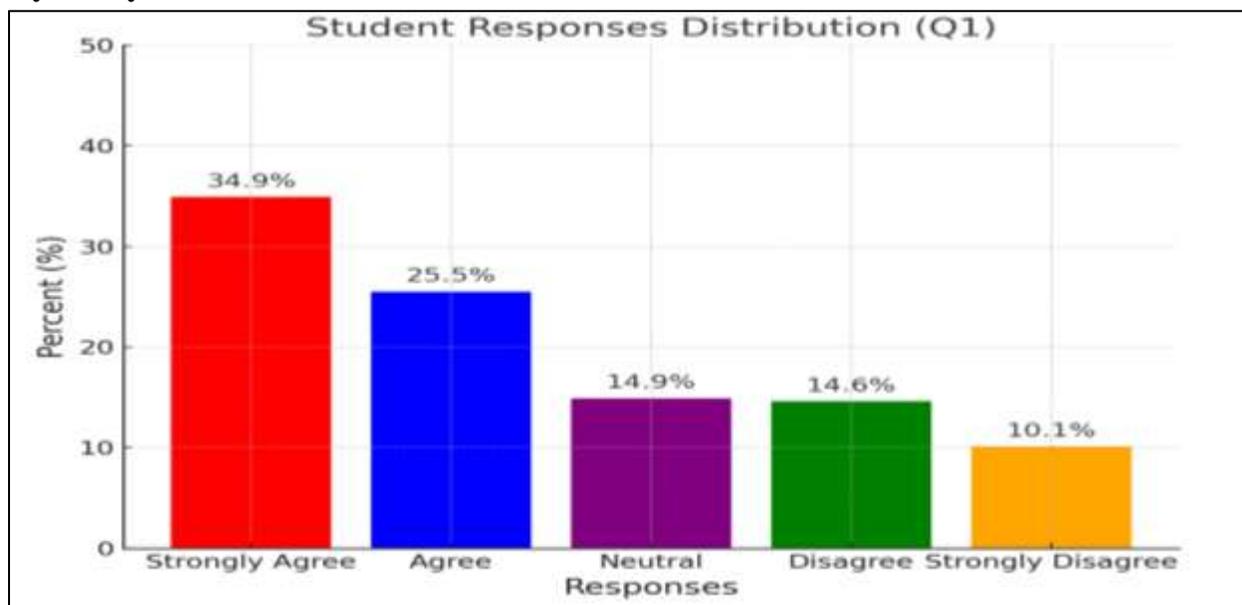
Given the chart, 34.9 per cent of the respondents strongly agreed that the disaster had a significant effect on their educational experience; therefore, in a way, there is a considerable percentage of students who reported considerable disturbance in their academic activities. An additional 25.5 per cent agreed with the statement and thus contributed to the finding that more than half of the respondents perceived some effect of the disaster on their education. A smaller segment (14.9 per cent) said the platform should then be neutral, representing potentially different levels of impact and/or uncertainty about the scope of disruption. Concurrently, 14.6% of students did not agree, meaning a section of students thought the disaster did not significantly affect their educational endeavours. Finally, 10.1 per cent strongly disagree, indicating that these respondents did not consider the disaster to have a significant impact on their access to

education. Collectively, these results suggest that the majority of students thought the disaster had a substantial effect on their educational experience; however, there is a discernible degree of variation in the level of agreement, with a small proportion of students reporting a lower degree of impact.

2: "I experienced displacement due to the disaster that affected my home and community."
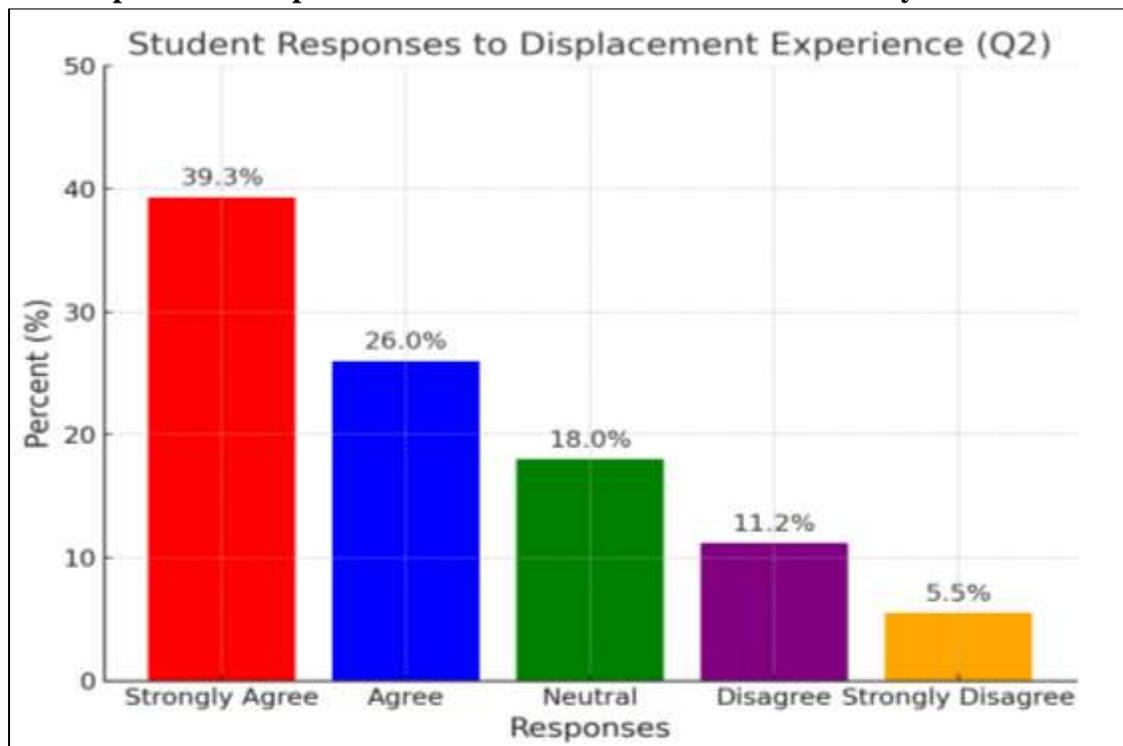
The chart shows the largest group of students (39.3% of the sample) strongly agreeing that they were displaced as a result of the disaster. This result suggests that a substantial 39.9% of the respondents felt a direct impact of the event as realised by the significant disruptions in their personal lives, such as the loss of homes or community structures. A secondary cohort, comprising 26.0% of the respondents, also agreed with the statement. This suggests that these students also experienced displacement, albeit with possibly different intensities or characteristics, perhaps experiencing less severe or various forms of displacement. The size of the neutral reaction group, which represents 18.0% of the students, indicates that there is a proportion of respondents who did not strongly associate with the concept of displacement. This may reflect a more ambivalent or heterogeneous experience, or a relatively weaker direct effect of the disaster on these individuals. Thus, although some disruptions were experienced, these students did not consider themselves to be displaced in the same way as others. The disagreement category comprises 11.2% of the students who self-identified as not being displaced; this may have been due to the fact that they lived in areas less directly impacted by the disaster or had resources to stay in their current locations despite disasters in the surrounding

areas. Finally, the smallest group - 5.5% of students - strongly disagreed with the statement, and as such, they considered themselves completely unaffected by the disaster and its repercussions on the community.   Taken together, this distribution can be seen to provide a wide range of experiences: whilst the majority of students recognised at least a low degree of displacement, a significant minority experienced lower levels of impact.

3: "The disaster directly impacted my educational institution and disrupted academic activities."
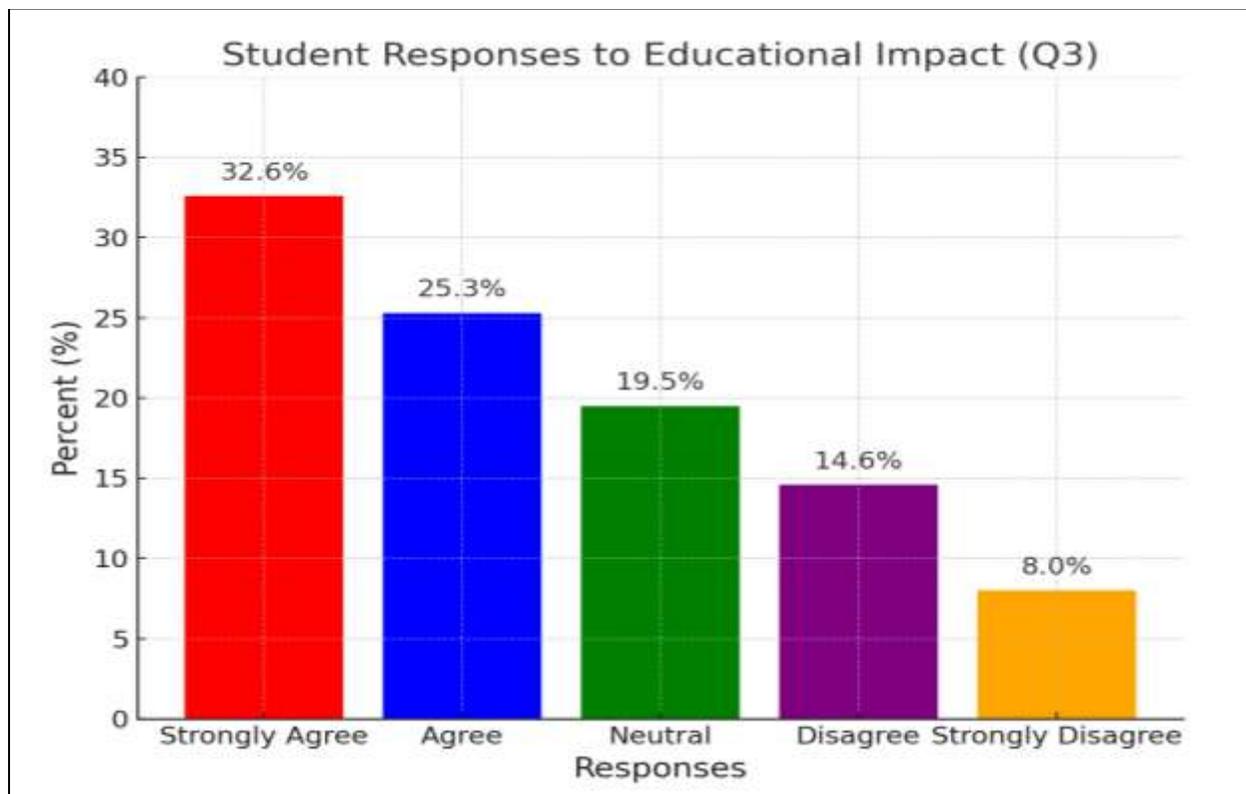

The chart shows that the largest group of students, 32.6%, strongly agreed that the disaster had a significant impact on their education, highlighting that over a third of the students felt the effects of the disaster were severe enough to disrupt their academic pursuits. This reflects a widespread perception that the disaster had a considerable impact on their ability to continue their studies as usual. A further 25.3% agreed with the statement, meaning that a significant portion of students also acknowledged the disruption caused by the disaster. However, their experience may have been less intense or more manageable compared to those who strongly agreed. The neutral response group, comprising 19.5% of students, suggests that some students either did not feel strongly about the disaster's effect on their education or experienced mixed impacts, where the effects were not as severe for them.

On the other hand, 14.6% of students disagreed with the statement, indicating that they did not feel the disaster had a significant effect on their education, possibly because they were able to

adapt quickly or were less affected by the event. Finally, 8.0% strongly disagreed, suggesting that these students did not perceive the disaster as having any meaningful impact on their academic progress. These results collectively indicate that the majority of students over half believed the disaster had a substantial effect on their education. At the same time, a smaller portion felt that the impact was either minimal or non-existent.

4: "I faced challenges in continuing my education due to displacement."
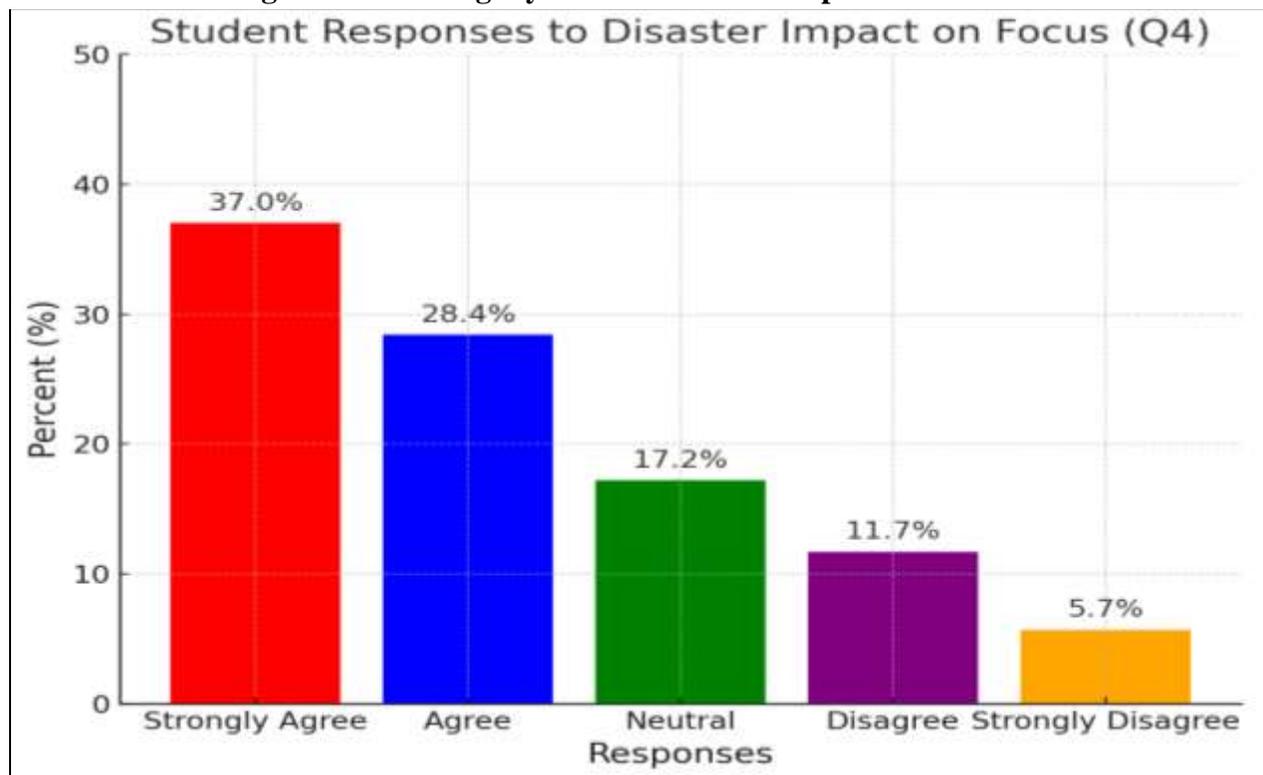
According to the chart, it is found that 37.0% of students strongly agreed that the emotional trauma caused by the disaster had a significant impact on their ability to concentrate on their studies. This suggests that many members of the student population felt that the effects of the psychological consequences of the disaster - including anxiety, stress, and trauma - were very distracting for concentration and performance of the studies. 28.4% of respondents additionally agreed with the statement, implying that 65.4% of respondents experienced some form of psychological distress that hindered their ability to study, thus highlighting the widespread psychological effects that disasters have on students' ability to focus on their studies. A large number of students (25.0%) were neutral, suggesting that for these students, the emotional distress did not appear to be significant enough or large enough to impact their academic concentration. The neutral respondents may have had good coping skills or positive external systems that helped them manage the emotional sequelae. Conversely, 11.7% of students disagreed with the statement, suggesting that they did not sense the emotional pain from the disaster, which disrupted their concentration for studies. This group may reflect a greater level of

resiliency or a lesser degree of susceptibility to the emotional impact of the disaster. Finally, 5.7% disagreed strongly, indicating that a small fraction of students did not believe the disaster had any emotional impact on their ability to focus on their studies. This group may have experienced little emotional turmoil or had weak social support systems, allowing academics to maintain their focus even amid the crisis. The results indicate that the emotional condition was one of the most significant factors influencing students' ability to cope with studies during a crisis: an overwhelming majority of students identified emotional distress as a substantial factor affecting academic performance.

Interview Questions Analysis
1: "Can you briefly describe your role in the university and your involvement in disaster management or recovery efforts?"
Themes Identified: Faculty involvement in disaster recovery, roles in academic management, disaster response participation
Example Response:
"I am a faculty member in the Environmental Science department, and I was actively involved in coordinating online classes during the disaster. I also assisted in providing psychological support to students and faculty members during the recovery phase."'
Interpretation:
It demonstrates the proactive and dynamic nature of the faculty's role during the disaster recovery stage, giving the impression that it was not just a matter of facilitating academic operations, but also that faculty members played a critical role in offering valuable psychosocial support to the students. Faculty were also asked to play diverse roles that were not included in conventional coursework, such as coordinating online classes and creating adaptive courses, on the one hand, and providing emotional support to students who were psychologically suffering due to the devastation of the disaster, on the other hand. It is this that makes disaster recovery in universities a multi-layered process, where academic continuity must be balanced against the emotional and mental needs of students. This concept of faculty involvement in the educational and emotional well-being of students illustrates the interrelationship between progress and health in post-disaster recovery. This reaction highlights the importance of universities considering the diverse roles faculty members will need to fulfil during a crisis and ensuring that the necessary training and resources are provided to support them in their new positions. Second, the findings on the significance of faculty caring and commitment to maintaining student interest and motivation during such difficult periods are highlighted as the most significant measures to create a sense of normality and resilience in the academic environment.

2: "How would you describe the impact of the disaster(s) on the university's academic operations?"
Themes Found: Disruption of academics, transition to online studies, damage to infrastructure.
Example Response:

"The floods severely impacted our campus infrastructure, forcing us to shift to online education. However, many students didn't have access to the necessary technology, which affected their ability to participate in online classes."

Interpretation:

Due to the disaster that caused physical destruction of the university's infrastructure, a change was needed to the online learning setting to continue with academic activities. Nonetheless, the move to digital systems posed significant issues for many students, who were hindered mainly by a lack of access to technology and internet connection. These issues were challenges that could threaten successful attendance in online courses, with adverse consequences for the learning process and support of educational progression. This experience has underscored the pressing need for universities to establish and maintain a robust digital infrastructure, along with a dependable learning facility, for all learners. Furthermore, it emphasises the importance of equitable access to the tools that support learning in emergencies, as needed by all students, regardless of socio-economic status and geographic location, such as devices, internet connections, and technical assistance. The main lessons that were gathered as a result of their case studies were that, as a university, to ensure that learning is not lost to anyone in the event of a disaster, they must invest in digital capacity building that is not only meant to accommodate remote learning in the short run but in the long run as well. Furthermore, this also requires universities, when preparing for or responding to an emergency, to have contingency plans in place that can rapidly deploy to minimise the impact of infrastructure damage on students' capacity to learn and engage academically.

3: "In your opinion, what did displaced students face as the most significant challenges during and after the disaster?"

Themes Identified: Financial hardship, emotional distress, loss of stability

Example Response:

"The biggest challenge was the emotional distress caused by displacement. Many students had to leave their homes and communities, and this experience had a profound impact on their academic performance. Additionally, there was a lack of financial resources to continue their education."'

Interpretation:

The effects of displacement, compounded by financial obstacles, became a significant hindrance to students' maintaining their academic stability. Most students reported that they could not concentrate on their studies due to the traumatic stress and stress about losing living quarters, communities and the safety they had hitherto been getting. The awareness of emotional instability contributed to an impressive decline in academic performance since students could not balance their academic needs and emotional/ mental dislocation. The familiarity and routine were lost, supplemented by a growing sense of anxiety and uncertainty, which further impacted their ability to contribute to their studies. This result is consistent with the literature, which has revealed a close relationship between psychosocial issues and academic achievement during displacement (Siddique et al., 2020). Research has consistently shown over the years that

students who experience emotional upheavals, particularly during periods of displacement, find it even more challenging to maintain their academic status. Financial issues accompanied these problems, and several students were unable to afford the resources they needed to continue their studies, such as textbooks, technology, and internet connectivity. All these emotional and financial stresses underscore the intense need for institutions of higher learning to provide not only academic services, but also comprehensive mental health services and financial assistance in helping students navigate the challenging path of displacement. Listening to both the emotional and practical needs of students can help them better cope with these challenges, thereby enhancing their academic performance during times of crisis.

4. Results and Discussion

The Results and Discussion sections form the major analytical parts of the current study, encompassing both quantitative and qualitative aspects of the research contributions, and analyse the impact of disasters from a critical perspective in higher education. Khyber Pakhtunkhwa (KPK), a region prone to various disasters, forms a highly relevant context for studying vulnerability in education and the potential institutional capacity to respond to such vulnerability.

The empirical research findings are embedded within a general review of disaster management and educational resilience, drawing on existing literature. This paper examines the educative impact of disasters on students, considering not only their physical displacement but also a complex interplay of social, economic, psychological, and institutional factors. By placing the findings within a conceptual framework, the chapter contributes to the discussion of systemic weaknesses in educational arrangements and how these weaknesses can increase the risk of vulnerable student groups during emergencies.

More specifically, this chapter is dedicated to the disruptions caused by disasters on school attendance, participation, and learning experiences for displaced students. By placing the results within the broader context of previous work, it shows continuity with institutions' failure to provide effective disaster response, especially in the higher education sector. The evidence suggests that the responses thus far have mainly been piecemeal, short-term, and ad hoc, focusing on specific issues without a comprehensive vision for maintaining academic continuity during and after emergencies. This fact highlights the importance of strategically coordinated, inclusive, and sustainable EQoE intervention strategies across various dimensions, including infrastructural and psychosocial aspects of education. After examining the current situation, the chapter proposes a paradigm shift in disaster preparedness from a defensive to an offensive approach in all educational contexts following the occurrence of a disaster.

5. Conclusion

The study confirms that disasters have a significant impact on students' access to learning opportunities, significantly and disruptively affecting the learning process at all levels of the education system. Sixty-seven per cent of the participants were classified in the high problem

group in their academic endeavours. Educational infrastructure often came to a complete halt, and schools were closed. In addition to the physical separation from instructional sites, displacement removed students from their customary social, economic, and technological resources, as reflected in their marked inability to engage effectively in learning. A substantial percentage of the respondents reported the unavailability of essential learning materials, including textbooks, digital platforms, and reliable internet connectivity. These constraints bring into focus the dependency of present educational models on infrastructural stability, making these models among the first to suffer the brunt of a disaster. Such losses amount to more than just an inconvenience; they mean a profound disruption in the course of study for students. The findings are consistent with existing literature, which posits that the impact of disasters radiates: material damage often translates to prolonged dislocation of learning due to the lack of stability in buildings, resources, and institutional reconstruction by authorities.

5.1 Recommendation

Institutions should ensure that resourcing for displaced learners is guaranteed to ensure stable access to key technological resources. Some potential interventions involve providing mobile hotspots, laptops, or digital tablets, along with access to learning-at-home platforms, within temporary shelters or refugee facilities. The development of technological infrastructure and resilience measures should be integral to a comprehensive disaster response plan. Universities must provide comprehensive mental health services as part of their disaster preparedness programmes. This integration should include counselling services, peer support, and stress management programmes aimed at helping students maintain academic focus despite disruptions triggered by crises. Mental-health mental-proofing, however, may help to reduce enrollment losses and increase student retention in the midst of and following a disaster.

i. Develop strong disaster preparedness plans in higher education institutions to ensure continuity of learning during emergencies.

ii. Improve digital infrastructure, including access to online learning platforms, devices, and internet connectivity for all students.

iii. Provide regular mental health and counseling services to support students affected by disasters.

iv. Ensure timely academic support, such as makeup classes, flexible deadlines, and alternative assessment methods.

v. Strengthen communication systems between universities and students to provide accurate information during disasters.

vi. Train faculty and administrative staff on disaster management, online teaching, and student support strategies.

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