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Research Article

Emergency Preparedness in Higher Education: A Literature Review on Institutional Readiness and Disaster Response

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Abstract

This literature review examines the state of emergency preparedness in higher education institutions (HEIs), with a focus on institutional readiness and disaster response in the Philippine context. As academic centers responsible for instruction, research, and community engagement, HEIs are expected to play a proactive role in fostering disaster resilience. Through a review of 30 studies from 2015 to 2025, five key themes emerged: (1) student awareness and preparedness, (2) institutional readiness and risk reduction implementation, (3) communication systems and coordination, (4) disaster risk reduction education and curriculum integration, and (5) policy, governance, and research in disaster risk management. The results show that HEIs are making progress in some areas of disaster preparedness but not in others. While initiatives such as integrating the curriculum and utilizing ICT tools show promise, challenges persist in implementing policies, providing mental health support, and adapting to local risks, particularly in rural and under-resourced schools. The review concludes with recommendations for integrating DRRM into the governance of higher education institutions, enhancing capacity-building efforts, strengthening research and extension programs, and fostering a culture of institutional resilience.

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1. Introduction

In an era of increasing natural disasters, pandemics, and health emergencies, higher education institutions (HEIs) play a crucial role not only in knowledge production but also in fostering community resilience and institutional preparedness. As learning centers for thousands of students, faculty, and staff, HEIs are expected to implement proactive strategies that ensure life safety, academic continuity, and disaster risk reduction (Patel et al., 2023; Tkachuck et al., 2018).

Emergency preparedness in higher education refers to an institution's capacity to prepare for, respond to, and recover from disruptive events through effective governance, instructional continuity, physical, and community engagement. This role becomes more critical in the Philippines given the it is geographically situated in the Pacific Ring of Fire and the typhoon belt where HEIs regularly face risks from typhoons, earthquakes, volcanic eruptions, and public health crises like COVID-19 (Blanco, 2015; Pelmin, 2020; Dayagbil, 2023).

Legally, Republic Act No. 10121, also known as the Philippine Disaster Risk Reduction and Management Act of 2010, mandates the mainstreaming of disaster preparedness across all societal sectors, including education. Complementing this, the Commission on Higher Education (CHED) developed policy directives urging HEIs to institutionalize DRRM frameworks aligned with national goals.

Despite these policies, recent studies reveal glaring implementation gaps in many Philippines HEIs particularly those in rural or local institution with limited resources such as lack of trained personnel, outdated

communication systems, limited curriculum integration, and low institutional risk awareness (Pardillo, 2025; Eleorda et al., 2025; Nielo, 2024). These contradictions, where policy exists but execution falters, underscore the need for evidence-based assessments of institutional readiness and response capacities (Estadilla, 2025; Paño et al., 2015).

While numerous studies document various aspects of DRRM in higher education from student awareness (Malonecio, 2023; Tabangcura et al., 2023) to governance models and curriculum development (Labaria et al., 2020; Dahl & Millora, 2016) there remains a notable gap in synthesizing these findings thematically to inform practice and policy. Thus, there has been a missing piece that not only describes the efforts being made, but also interprets their patterns, contradictions, and implications across institutions and regions. For instance, despite high student awareness, preparedness levels remain low; institutional policies exist, but are inconsistently enforced (Tan et al., 2016; Matunhay, 2022).

Thus, this review seeks to examine the current state of emergency preparedness in Philippine HEIs, focusing on institutional readiness and disaster response. Through thematic integration of recent literature (2015–2025), highlights frameworks, educational strategies, communication practices, and operational gaps. The ultimate goal is to provide administrators, policymakers, and educators with actionable insights to strengthen resilience and cultivate a preparedness culture in higher education settings.

2. Materials and Methods

This literature review employed a systematic approach to identify, evaluate, and synthesize relevant studies on emergency preparedness in higher education, particularly focusing on

institutional readiness and disaster response in the Philippine context.

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Relevant literature was gathered from scholarly databases including Google Scholar, ERIC, ScienceDirect, JSTOR, and Scopus, using Boolean combinations of search terms such as: *"emergency preparedness" AND "higher education"*, *"disaster risk reduction" AND "Philippines"*, *"university disaster response"*, *"institutional readiness"*, and *"campus disaster management"*.

Inclusion criteria for study selection were: (1) *focus on higher education institutions*, (2) *relevance to emergency preparedness, disaster risk reduction, or institutional response*, (3)

English language, and (4) *publication year between 2015 and 2025*. Studies that focused solely on basic education or lacked full-text access were excluded.

Out of 436 records initially identified, 400 were screened after duplicate removal. Sixty full-text articles were assessed for eligibility, and 30 studies were finally included in the review. The entire selection process followed the PRISMA 2020 guidelines (Page et al., 2021), which are reflected in the PRISMA flow diagram presented in Figure 1.

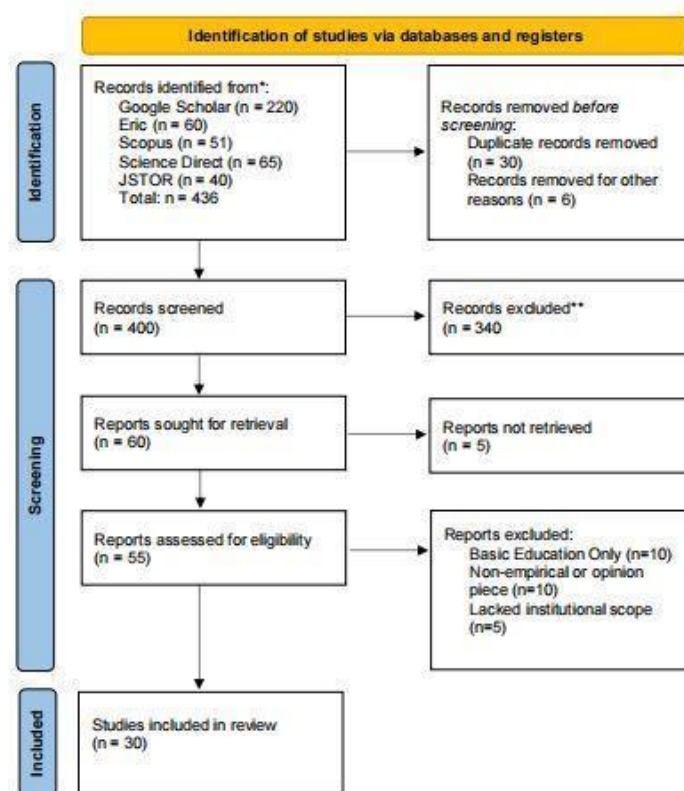


Figure 1. Identification of Studies using PRISMA, Databases and Registries

Thematic analysis was employed to synthesize findings. Using a deductive approach, the researcher grouped key insights based on existing frameworks and national/international disaster preparedness guidelines. This form of

analysis was guided by Braun and Clarke's (2006) six-phase framework, which involves familiarization, coding, theme development, review, definition, and reporting of themes.

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3. Discussion

Higher education institutions (HEIs) play a crucial role in promoting safety and resilience, particularly in countries like the Philippines, which are prone to disasters. Universities are expected to not just protect their academic communities at large, but also be administrators in preparing for and responding to disasters. Faculty, staff, and students are expected to be knowledgeable about all emergencies that may occur on campus premises. As a result, the higher education sector needs to adopt a more systematic and organized approach to emergency preparedness.

This review of the literature looks at how well

HEIs are prepared for emergencies right now, with a focus on how ready institutions are and how they respond to disasters. The review identifies key themes, including student awareness, institutional policies, communication systems, curriculum integration, and governance, by examining studies from abroad and within the Philippines. These themes help us understand the problems, new ideas, and opportunities that exist in higher education to strengthen disaster risk reduction. The table below presents a consolidated overview of the emerging themes, key findings, and identified gaps in HEIs disaster preparedness and response.

Theme	Key Findings	Gaps
1. Awareness and Preparedness Among Higher Education Students	Students are generally aware of disaster risks and basic responses.	High awareness does not consistently result in actual preparedness behavior.
2. Institutional Readiness and Risk Reduction Implementation	Policies and structures exist in many HEIs, especially urban ones.	Well-resourced HEIs may lack community engagement; rural HEIs face structural constraints despite strong community ties.
3. Communication Systems and Coordination in Emergency Response & Coordination	Need for real-time, localized communication tools emphasized.	Fragmented or outdated systems, especially in rural HEIs, cause delays and confusion.
4. Disaster Risk Reduction Education and Curriculum Integration	Efforts to integrate DRRM into academic programs are increasing.	Policy presence does not guarantee effective training or simulation practices.
5. Policy, Governance, and Research in Disaster Risk Management in HEIs	HEIs are part of broader DRR governance and research networks.	Policy-practice gaps persist, especially at the local/rural level.

Table 1. Summary of Themes, Key Findings, and Gaps

Theme 1: Awareness and Preparedness Among Higher Education Students

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Disaster preparedness among university students has become a critical concern in recent years, particularly in regions prone to natural hazards and public health emergencies. As highlighted in the study by Patel et al. (2023), the level of disaster preparedness and awareness among university students is often influenced by various psychosocial and demographic factors. Their structural equation analysis revealed that students with higher risk perception and prior exposure to disasters tend to show greater preparedness behavior. This aligns with the findings of Tkachuck et al. (2018), who emphasized the role of institutions in cultivating preparedness by providing risk education and simulation-based training, suggesting that preparedness is not solely an individual responsibility but a shared institutional mandate.

In the context of Asia, particularly China, Tan et al. (2017) assessed disaster preparedness among students in Guangzhou and discovered that despite basic awareness, there was still a significant demand for more comprehensive disaster education. Students expressed the need for clearer protocols, frequent drills, and institutional visibility in risk communication. The findings emphasized that being informed does not necessarily translate into being prepared, a concern echoed across several developing nations.

Locally, Malonecio (2023) examined disaster awareness and resiliency preparation among Filipino higher education students, finding high levels of disaster awareness but varying degrees of personal readiness. Her study emphasized the importance of fostering not just cognitive awareness but emotional and behavioral preparedness, especially in the wake of recurring typhoons and earthquakes in the Philippines. Similarly, Tabangcura et al. (2023) focused on student awareness in a private higher education institution. They found that while most students

understood disaster risks and basic responses, gaps existed in terms of structural and systemic knowledge, particularly related to institutional protocols and coordination. Matunhay also conducted a study that shows the level of disaster preparedness is closely linked to educational programs in colleges and universities (Matunhay, 2022). This shows how important it is to have a planned way to teach students how to spot dangers and take the proper safety steps. Students can be better prepared by participating in regular drills, workshops, and collaborating with local disaster response agencies (Matunhay, 2022).

The collective insights from these studies suggest that while many students are aware of the threats posed by disasters, this awareness does not always translate into practical preparedness. Universities, therefore, play a central role in bridging this gap by developing structured, context-specific disaster preparedness programs that not only inform but also engage students in active, hands-on preparedness activities.

Moreover, a critical contradiction arises: though awareness levels are high, many students still demonstrate limited personal readiness when assessed through practical applications. This gap highlights a key theme across the literature: knowledge alone is insufficient without behaviorally oriented training and consistent institutional reinforcement.

Comparing this theme with others, the mismatch between awareness and action mirrors issues observed in curriculum integration and policy implementation, where intent does not always translate into effective practice. Rural HEIs, in particular, tend to face more difficulty in translating awareness into preparedness due to weaker access to drills, simulations, or local agency partnerships.

Theme 2: Institutional Readiness and Risk Reduction Implementation

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Institutional readiness refers to the capacity of higher education institutions (HEIs) to prepare for, respond to, and recover from emergencies. In the Philippine context, this readiness is crucial given the country's exposure to various hazards. As observed by Mendoza (2025), many local universities and colleges in Central Luzon have already integrated disaster risk reduction and management (DRRM) practices, although implementation levels vary widely depending on available resources and administrative priorities.

Meanwhile, Paño et al. (2015) described HEIs as both potential "*victors*" and "*victims*" in disaster risk reduction. Their analysis revealed that institutions with clear DRRM mandates, trained personnel, and infrastructure support tend to lead successful preparedness and response efforts. However, others, especially in rural or underfunded areas, struggle to meet even the minimum standards of readiness.

In a similar vein, Pardillo (2025) emphasized the importance of contextualized governance models in rural higher education institutions. His case study underscored that policy alone is insufficient without strong institutional leadership and local engagement. Likewise, Pelmin (2020) highlighted how COVID-19

revealed many gaps in Philippine HEIs' preparedness, particularly in health security, online transition, and emergency protocols.

Lastly, Estadilla (2025) assessed occupational safety and health (OSH) practices in private HEIs and linked safety policies with institutional resilience. She argued that proactive OSH integration enhances preparedness, especially in campuses prone to floods, fires, or seismic activity. A notable contradiction emerges: while institutional policies are often documented and approved, their practical implementation remains inconsistent, particularly in areas where administrative initiative or resource allocation is lacking.

Moreover, rural HEIs consistently show underperformance across multiple themes, not only in infrastructure, but also in emergency drills, training, and coordination mechanisms, reinforcing the concern of systematic underpreparedness outside urban areas.

This highlights the importance of going beyond compliance-based approaches and ensuring that DRRM plans are operationalized, regularly evaluated, and effectively monitored.

Theme 3: Communication Systems and Coordination in Emergency Response

Effective communication and coordination are at the heart of successful disaster response efforts in higher education institutions. As revealed by Nielo (2024), HEIs located in disaster-prone areas such as Occidental Mindoro require a clear and localized disaster communication plan. His study emphasized that communication breakdowns during emergencies can lead to confusion and delays, particularly in institutions that lack real-time coordination tools and protocols.

Eleorda et al. (2025) supported this point

through a scoping review, which found that many Philippine HEIs still rely on outdated or fragmented communication systems. The study highlighted the need for standardized training programs that enhance internal coordination among faculty, staff, and students, particularly during disasters like earthquakes and typhoons. In terms of technology, Toledo et al. (2017) proposed the development of disaster-related mobile applications, such as SakunAPP, to enhance real-time reporting and community engagement. Such digital tools enable students and administrators to receive alerts, report

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incidents, and access resources promptly during crises.

Broadening the scope, Kaku (2019) highlighted the application of satellite remote sensing in disaster management, which facilitates more accurate data collection, hazard mapping, and post-disaster assessments. Although most HEIs in the Philippines do not yet utilize such high-level technology, the integration of these tools can significantly improve institutional preparedness and coordination.

Finally, Blanco (2015) offered a governance perspective, emphasizing that post-disaster coordination among government, institutions, and communities remains a challenge in the Philippines. Lessons from the aftermath of Super Typhoon Yolanda illustrated that response

systems must be inclusive, pre-planned, and community-centered. Despite the existence of communication protocols in many HEIs, real-time execution during disasters or health emergencies often improves it, exposing the gap between systems and actual responses.

The comparative analysis of this theme with others also suggests that communication failures compound other weaknesses, such as lack of student preparedness or slow institutional response.

Furthermore, rural HEIs consistently show delayed or fragmented emergency communications, limiting their capacity to respond quickly. This again reinforces a pattern of underpreparedness outside of urban academic settings.

Theme 4: Disaster Risk Reduction Education and Curriculum Integration

Disaster education and integration into academic programs are essential for building long-term resilience in higher education. As highlighted by Dayagbil (2023), the adaptation of teaching and learning strategies during crises plays a key role in ensuring continuity and preparedness. The study identified that universities implementing flexible learning modalities were more capable of delivering DRR-related content, even during emergencies. Park and Kim (2017) support this focus on formal training by studying emergency nurses. They found that both experience and knowledge of disasters were good predictors of disaster nursing skills. This shows how important it is for higher education institutions (HEIs) to have practical training experiences like simulation drills and targeted curricula to improve their disaster preparedness.

Dahl and Millora (2016) explored the concept of lifelong learning through disaster experiences in Philippine universities. They found that group-based reflection and experiential learning can enhance students' personal and collective

resilience. This emphasizes the idea that DRR education goes beyond technical knowledge and includes values formation, cooperation, and reflective practice. The mental health dimension in DRR was introduced by Labaria et al. (2020), who argued that disaster risk education should also address psychosocial preparedness. Their work recommends that mental health strategies be embedded into DRR courses to foster emotional resilience in academic communities.

The use of technology in disaster preparedness classes could be a great way to improve learning. When face-to-face training is limited, virtual simulations and online learning technologies can complement traditional teaching methods. Ocampo et al. (2023) assert that the recent COVID-19 pandemic has highlighted the need for flexible learning methods when classes are disrupted. They say that schools can adapt their teaching methods to keep students learning while also preparing for disasters.

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Utilizing online platforms for disaster training can lead to more effective simulation experiences. For example, remote disaster drills can put students in situations where they must make quick decisions, which helps them think critically when under pressure. Multimedia resources can also help explain complex ideas related to emergency management. They offer various learning methods that cater to different types of learners (Tan et al., 2016). Furthermore, Atlantis Press (2019) presented concrete efforts to integrate DRR into the Philippine school curriculum, suggesting that localized disaster education will be tailored to geographic and institutional risks, which also strengthens awareness and action. Meanwhile, Toquero (2021) described how one state university was able to turn early pandemic challenges into educational "*silver linings*", innovating new ways to deliver safety education remotely. In a related study, Alburo (2025) examined how a Philippine state university navigated the disruptions brought about by the COVID-19 pandemic through innovative practices in instruction, research, and extension. The study

highlighted the importance of institutional agility and faculty engagement in maintaining educational functions during a crisis. This review expands on previous research by the author (Alburo, 2025), incorporating additional studies to synthesize wider thematic insights on disaster preparedness and response in Philippine HEIs. This highlights the broader impact of DRRM integration, not only on student preparedness but also on the systemic capability of institutions to transform crises into opportunities for educational reform.

Nevertheless, a contradiction persists: although DRR content exists in syllabi, students may not experience consistent or effective delivery, especially in large classes or poorly supported institutions.

Across themes, curriculum integration is closely tied to both student awareness and institutional readiness, demonstrating that education serves as a foundational driver of preparedness outcomes.

Theme 5: Policy, Governance, and Research in Disaster Risk Management in HEIs

The role of higher education institutions in shaping disaster governance is increasingly recognized in policy and research. According to Izumi, Pal, and Shaw (2022), HEIs are crucial players in national and regional disaster frameworks in addition to being academic institutions.. Their role includes conducting research, training future responders, and contributing to community-based disaster risk management.

Pardillo (2025) also emphasized the need for contextualized policy support in rural institutions. His study identified the misalignment between national policies and local realities, advocating for a bottom-up governance structure to improve DRR outcomes. From a research management perspective, Regla

and Ballera (2021) conducted a network analysis to map disaster-related studies in Philippine HEIs. They highlighted the importance of collaborative networks, data visualization, and agenda alignment in improving institutional preparedness. Adding a regional lens, Symaco and Tee (2019) investigated the role of social responsibility in ASEAN universities, noting that disaster resilience should be seen as part of a university's civic duty. Lastly, Hoffmann and Muttarak (2017) demonstrated that both education and lived disaster experiences significantly improve disaster preparedness behavior, reinforcing the value of DRR education in long-term planning. However, many HEIs, especially in rural areas, particularly here in Cebu, still operate with unclear DRR mandates or minimal support for

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implementation. This reinforces a repeated contradiction: strong national policies exist, but institutional execution varies.

in institutional readiness, communication systems, and curriculum integration, showing a consistent pattern where rural HEIs are underprepared across almost all thematic areas.

This theme also echoes previous concerns raised

4. Conclusions and Recommendations

This literature review highlights the significant role that higher education institutions (HEIs) play in disaster risk reduction and emergency preparedness. As centers of instruction, research, production, and community extension, HEIs can take the lead in building resilient academic communities. While the reviewed studies show

increased awareness and partial implementation of preparedness policies, many institutions continue to face structural and operational challenges, particularly in incorporating disaster preparedness into academic programs, strengthening institutional systems, and engaging stakeholders in coordinated responses.

It is clear that higher education's responsibility in emergency preparedness extends beyond compliance; it requires a transformational change toward becoming proactive agents of resilience. As a result, the following recommendations are put forward:

1. Institutionalize DRRM in the HEI Governance Structure: Disaster risk reduction and management should be integrated into universities and colleges' institutional policies, strategic plans, and quality assurance systems, rather than viewed as a distinct endeavor.
2. Integrate DRR Education Across Curricula and Programs: DRR should be taught across all disciplines, from education and health to engineering and business, to instill a culture of readiness and critical risk thinking in all students.
3. Invest in Faculty and Staff Capacity Building: Continuous training and professional development are required to guarantee that educators, administrators, and academic support personnel are prepared to handle emergencies in both instruction and operations.
4. Utilize Technology for Preparedness and Response: Universities must utilize ICT tools, such as early warning systems, mobile applications, remote sensing, and digital learning platforms, to enhance communication and continuity of instruction during an emergency.
5. Strengthen DRRM Research and Extension: As knowledge generators, higher education institutions must emphasize research that informs DRR policy and practice. Extension initiatives should help local communities develop disaster awareness, preparedness skills, and risk communication techniques; and
6. Create Context-Based, Localized Models: Preparedness frameworks, particularly in rural HEIs and state universities, must be aligned with local hazard profiles, resources, and cultural settings.

Ultimately, creating disaster-resilient higher education institutions is not only a strategic necessity but a moral responsibility. The ability of HEIs to anticipate, absorb, and recover from crises reflects their institutional integrity and commitment to sustainable development. By strengthening their capacity in DRRM, universities can fulfill their mission to safeguard not only academic continuity but also human life and dignity.

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5. Limitations

This study has several limitations that should be acknowledged. First, the scope of the review was restricted to published English-language sources, which may have excluded relevant studies available in other languages. Second, there is a potential publication bias as unpublished institutional reports and grey literature were omitted. Third, the study did not

conduct a meta-analysis or quantitative synthesis, which limits the ability to statistically aggregate findings across studies. Finally, the exclusion of unpublished institutional reports may have omitted valuable contextual information pertinent to disaster preparedness and response in higher education institutions.

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The author declares no conflict of interest.

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