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Crisis Management in School Environments: A Holistic Approach Based on Literature Review

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Abstract
This study investigates crisis management strategies in school environments, focusing on natural disasters and related phenomena. The importance of preparedness, training, and collaboration in responding to unforeseen events underscores the need for comprehensive emergency plans, education of students and educators, as well as psychological support following a crisis. The study highlights the significance of cooperation with the broader community and the development of flexible crisis management systems. The research findings emphasize that enhancing school resilience and safeguarding the well-being of the school community are crucial for effective crisis response.

Keywords: Crisis Management, Natural Disasters, Schools, Resilience, Education

1. Introduction

The school environment is often the focus of unforeseen events that disrupt normal functioning and endanger the safety and well-being of the school community. These situations, characterized as crises, may include natural disasters, such as earthquakes or floods, as well as social phenomena, including violence, bullying, or health crises. The presence of such crises in the school environment has serious consequences for students, teachers and their families and can occur unexpectedly, often causing intense anxiety, disruption and disorganization in people's daily lives. The presence of crises in the school environment results in significant disruptions in the daily lives of students, teachers and their families. Their effects extend beyond the initial phase of the crisis, as they can lead to long-term psychological consequences, such as anxiety disorders, learning difficulties, and behavioral problems [1, 2].

According to Brock, Sandoval and Lewis (2005) [3], crises can be categorized into six main categories that include potentially traumatic events. These include acts of war, natural disasters, human-made or industrial disasters, violent and/or unexpected death, threatened death and/or injury, and life-threatening illness or injury (Fig 1). Each of these categories includes specific incidents that are likely to occur and have detrimental effects on people and communities: (a) Crises arising from life-threatening illness/injury events: This category includes incidents such as life-threatening illnesses, serious injuries, road, rail, and maritime accidents, assaults, suicide attempts, fires, and arson attacks. These events can cause serious psychological effects on survivors and their families. (b) Crises arising from violent and/or unexpected death events: This category includes fatal illnesses, fatal accidents, homicides, and suicides. The unexpected nature of these events often causes shock and emotional distress to the victims' families. (c) Crises arising from events of threatened death and/or injury: This category includes incidents of human aggression, such as robberies and assaults, as well as intimate partner violence. The consequences of these events can be long-lasting for the victims. (d) Crises resulting from acts of war: These include invasions, terrorist attacks, hostage-taking, and torture. The effects are often devastating for the affected societies. (e) Crises resulting from natural disasters: These include earthquakes, hurricanes, floods, fires, and other natural disasters. These events can cause extensive damage to infrastructure and affect the lives of thousands of people. (f) Crises resulting from human-made industrial disasters: These include nuclear accidents, plane crashes, and exposure to toxic substances. The consequences of these events can be extremely serious for human health and the environment [4, 5, 6].

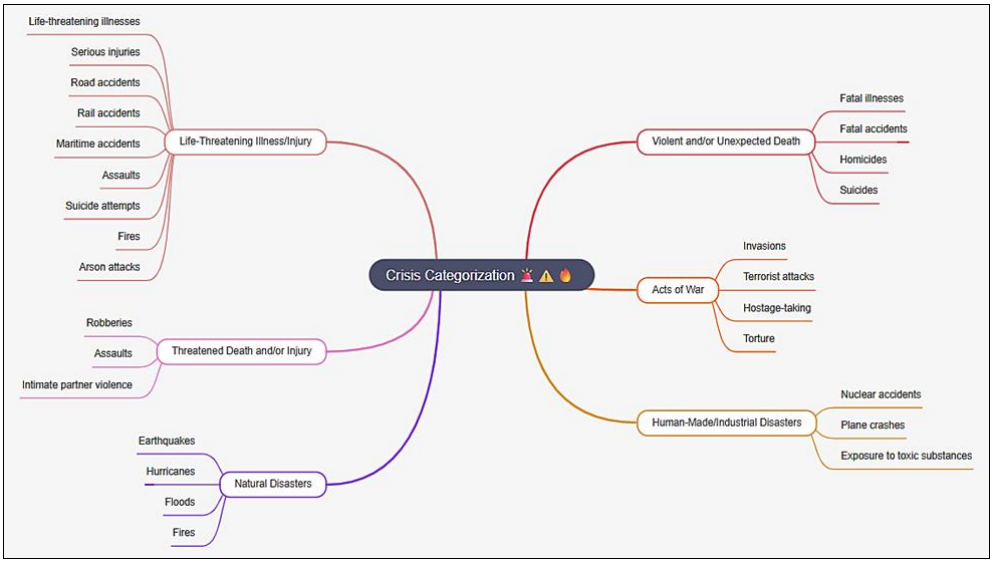

Fig 1: Diagrammatic representation of crisis categorization (Brock, Sandoval and Lewis, 2005)

Crises resulting from natural disasters or social phenomena are often unavoidable and have serious consequences for the educational process. Disasters can severely damage buildings, the transport system, and infrastructure, leading to social unrest and loss of life. Schools are directly or indirectly affected by such incidents. Globally, disasters cause significant damage to schools and deaths among school-age children and disrupt school activities, thus affecting the quality of education. This predisposes the destruction of socio-cultural life and resources after disasters. For example, the Sichuan earthquake in China in 2008 killed 10,000 students and destroyed 7,000 classrooms. Also, 17,000 students lost their lives and 10,000 schools were destroyed in the Kashmir earthquake in northern Pakistan in 2005 [7]. In addition, 604 primary schools and 92 high schools were damaged during the 7.2 magnitude Bohol earthquake in 2013. Nearly 1.2 billion students are enrolled in primary and secondary schools, of whom 875 million are in schools at high risk of earthquakes. Examination of natural disasters shows that school-age children, as the most vulnerable group, are particularly exposed to harm from natural disasters, especially while at school [8].

The inevitable occurrence of crises within the educational environment highlights the critical need for the development of a comprehensive and proactive crisis management framework. Such frameworks are essential to ensure the safety and well-being of students and staff, as well as to maintain educational continuity in adverse situations. In addition, there is a pressing need for a coordinated and holistic approach to crisis management in educational institutions, emphasizing practices such as staff training, transparent communication, and emotional support to enhance resilience and ensure safety, educational continuity, and well-being during crises [9].

Systematic underestimation of the importance of preparedness for unforeseen events carries the potential risk of undermining the resilience of educational organizations, making them vulnerable to significant operational disruptions and poorly prepared to effectively respond to emergencies. Crisis management requires an integrated approach that combines prevention, preparedness, and response. As reported in the literature [10, 11], effective crisis management can reduce the negative impacts on individuals and communities. Psychological support is also crucial during and after a crisis [12], as people often need help to cope with the consequences of traumatic events.

Effective implementation of crisis management plans in schools is vital to ensuring the safety and well-being of students and staff. This involves a comprehensive approach that focuses on strategic planning, effective leadership, and clear communication to address a variety of potential crises, from natural disasters to violent incidents. Key aspects of successful crisis management in educational settings include strategic planning, leadership, and communication, aimed at addressing a wide range of potential emergencies.

This study aims to examine and analyze the strategies used for crisis management in school environments. Particular emphasis is placed on adopting a holistic approach, which will ensure both the safety and well-being of the school community in cases of unforeseen events. The research seeks to:

- assess existing crisis management strategies: It focuses on identifying best practices as well as shortcomings in the current methods implemented by schools to deal with crises resulting from natural disasters.
- investigate the need for training and preparedness: It highlights the importance of appropriate training for students and staff in crisis management procedures, with the aim of strengthening the resilience of schools.

2. Materials and methods

2.1 Research Hypotheses

The research hypothesis concerns whether the development and implementation of comprehensive crisis management strategies - including preparedness, education, community engagement, and psychological support - are crucial for enhancing the resilience of schools to natural disasters and other unforeseen events, while ensuring the safety, well-being, and educational continuity of the school community.

2.2 Methodological Framework of the Research

The literature review in this study examines crisis management in school settings, emphasizing strategies and practices implemented for the safety and well-being of students and educational staff. Publications from reliable scientific journals or organizations that have undergone a

peer-review process were preferred, which guarantees the validity of the findings. The literature search was limited to primary sources, i.e., scientific articles published in international peer-reviewed journals, during the period 2020–2023, and written in the English language.

The main criterion linking the studies under review is the exploration of strategies and practices related to preparedness, response, and recovery from crises in school settings. The articles include data from various geographical areas and educational systems, in order to ensure a broad understanding of crisis management strategies. Preference was given to studies that employed a combination of quantitative and qualitative methods, providing a comprehensive understanding of the strategies and their impacts.

In research on crisis management in the school environment, the selection of appropriate participants and the application of specific exclusion criteria are fundamental elements in ensuring the validity and reliability of the findings. The selection criteria include a wide range of parameters that allow for systematic and representative sampling. Specifically, the type of school is considered—including public, private, and special education institutions—as well as school size, as determined by the number of students and teachers. Geographical location is also a key factor, as the aim is to include schools from both urban and rural areas, and even from different countries, thus offering a multidimensional perspective on the topic. The methodological approach of each study—whether qualitative, quantitative, or mixed-is also a decisive inclusion criterion (Table 1).

Table 1: Criteria for inclusion of studies in the review

Criterion Categories	Inclusion Criteria
Type of publication	▪ Research article.
Content	▪ Examination of best practices for addressing emergencies in schools.
Type of school	▪ Public schools, ▪ private schools, ▪ special schools.
School size	▪ Number of students, Number of teachers.
Research context / background	▪ Primary education schools (elementary), ▪ Secondary education schools (junior high – high schools)
Population	▪ School principals, ▪ teachers, ▪ expert scientists.
Geographic location	▪ Urban areas, ▪ rural areas, ▪ different countries.
Type of crisis	▪ Natural disasters, ▪ pandemics.
Time period	▪ Recent and older crises.
Type of study	▪ Qualitative, ▪ quantitative, or ▪ mixed.

2.3 Exclusion Criteria and Difficulties

Establishing clear exclusion criteria in a study is a mechanism to safeguard research quality. Schools without prior experience in crisis management were excluded, as they could not contribute substantially to the study of crisis response strategies. In addition, studies of educational institutions that do not provide the necessary data or do not meet specific inclusion criteria—such as the required size or type of institution—were also excluded from the study.

2.4 Literature Review Results

Effective crisis management in a school environment requires a comprehensive approach that includes the formation of a specialized team (a steering committee to assess the school's crisis management needs, which includes diverse members beyond school staff), the development of a detailed communication plan (a detailed yet practical crisis communication plan that emphasizes pre-crisis preparedness, active response, and post-crisis recovery), and the clear definition of goals [13, 14, 15]. More specifically, the plan should be flexible and adaptable to the constantly evolving circumstances, both inside and outside the school, while ensuring coherence with the overall goals of the educational institution. In this way, the school unit can effectively deal with any crisis that arises, with the aim of protecting the school community and ensuring its smooth operation [16].

Schools with adequate preparedness and planning can develop comprehensive crisis management plans that include risk assessments and specific response strategies. Effective crisis management is essential for school administrators to ensure the safety and continuity of educational processes during unexpected events. Establishing clear communication channels among stakeholders (staff, teachers, students) is also vital, because they enhance coordination during a crisis. Factors that influence the crisis communication structure in schools include preparedness and planning, effective communication with stakeholders, clear goals, situational awareness, and a thorough analysis of strengths and weaknesses. These elements collectively contribute to the overall effectiveness of crisis management in educational settings [17, 18]. Therefore, for effective crisis management in a school setting, a comprehensive plan is necessary that includes: establishing a coordinating committee to assess needs and potential types of crises, incorporating strategies that take into account the psychological impact of crises on students and staff, developing specific protocols for different types of crises (such as natural disasters, violence, or individual crises), and using assessment tools, such as the

Comprehensive Crisis Planning Checklist (CCPC-2), to assess the thoroughness of plans (Fig 2). While comprehensive planning is crucial, schools must remain adaptable and continually update their strategies, recognizing the uncertainty of crises [19, 20, 21].

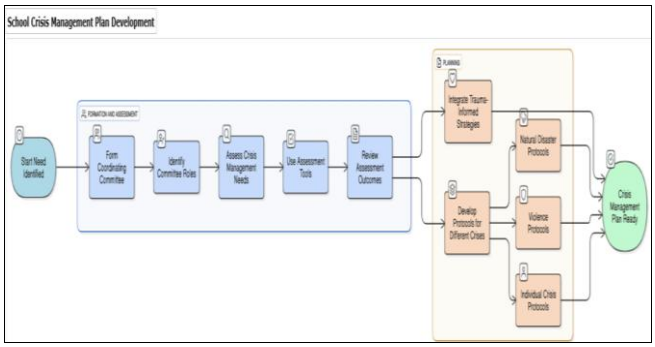

Fig 2: Diagrammatic representation of the basic elements of Crisis Management Plans

Schools that emphasize educational quality and adaptability demonstrate resilience to crises. Implementing technology for distance learning and maintaining flexible learning environments are key strategies [22]. Despite the importance of the above strategy, many schools face challenges in crisis management, particularly in leadership competencies and resource allocation. The COVID-19 pandemic has highlighted deficiencies in crisis management capabilities among school principals, requiring a reassessment of existing frameworks. Conversely, while effective crisis management is essential, some argue that an overemphasis on crisis preparedness can divert resources from core educational activities, potentially affecting the overall quality of education [23].

Developing robust strategies for creating disaster-resistant schools has been the subject of extensive research. Studying expert opinions, researchers concluded that enhancing building components, such as constructing schools with improved structural architecture and physical structure that strengthen the design and physical features of school buildings, and identifying the appropriate area by selecting the most advantageous locations for school buildings to minimize the impacts of a natural disaster are essential for creating safe school environments [8], (Table 2).

Table 2: Categories and subcategories of operational strategies for establishing disaster-resilient schools from the perspective of experts (Mirzaei *et al*., 2020)

Categories	Strategic	Brief Description (Comprehensive Codes)
Optimization of structural and non-structural elements	Risk management in construction projects	• Prioritization of vulnerable school buildings based on the year of construction or reconstruction. • Implementation of reinforcement programs, functional maintenance works, and annual assessment and identification of all potential risks in schools by technical experts. • Compliance with national regulations and building codes, Standard 2800 for school buildings, and the school reconstruction protocol. • Issuance of building codes and technical supervision for the acquisition of a school operating license.
	Optimization of construction architecture and physical structure	• Presence of windows, doors, and standard staircases (height, width, and proper orientation), as well as compliance with building height regulations (number of floors). • Presence of separate entrance, exit, and emergency escape staircase. • Installation of emergency exit doors and continuous maintenance of their open/unobstructed condition. • Allocation of a designated area as an emergency shelter. • Availability of two exits and access to an open space. • Adequate space for the movement of fire trucks and access for emergency responders to the school. • Access to the building via ladder in case of limited space.
	Accurate placement of the structure	• School location. • Assessment of climatic conditions and geological resilience (soil type) during the design phase.
Promotion of organizational coordination and interactions	Promotion of safety outside structural areas	• Presence and placement of fire extinguishers at critical points, along with instructions for their use. • Securing of non-structural objects, relocation or removal of equipment as needed. • Use of glass panels above doors instead of regular glass, or use of safety glass. • Safe storage of toxic and flammable chemical substances.
	Improvement in intra-organizational communication	• Interactions between students and school staff. • Ability to replace key personnel with other significant staff members in case of absence. • Contribution of teachers and staff in preparing the emergency preparedness educational program and effective leadership.
Promotion of organizational coordination and interactions	Improvement in extra-organizational communication	• Signing of contracts and existence of agreements with other organizations or local authorities. • Engagement of philanthropic builders and investors in reconstruction and construction of earthquake-resistant buildings. • Teaching of life skills and topics related to accident preparedness as a credit unit, along with revision of instructional materials in the curricula. • Contribution of parents in the design and implementation of the curriculum, and collaboration with parents for post-disaster interventions and interactions with the school.
Improvement in Education	Conducting educational courses for families and students	• Conducting simultaneous disaster education sessions for students and their families. • Teaching resilience, providing counseling to students and families, and raising awareness about their roles in critical situations and the psychological impacts. • Teaching life skills and topics related to accident preparedness as a credit unit, along with revising instructional materials in the curricula. • Teaching based on the school diploma level (primary, middle, or high school), boys' or girls' school, number of students and teachers, and variety of shifts.

Disaster preparedness education for both students and their families serves as a key pillar in the development of disaster-resilient schools. Simultaneous education promotes collaborative efforts and improves efficiency during emergencies. Building resilience skills, offering support, and informing about the psychological consequences of disasters contribute to better overall responsiveness. Embedding disaster education into the curriculum through course credits and dedicated instructional materials facilitates the delivery of essential knowledge and competencies. Nevertheless, the success of such educational initiatives relies on their customization to the specific context of each school and student body, as underlined in relevant studies: "educational protocols should vary depending on the type of school (primary, secondary or high school) and the number of students, teachers and school shifts, so that they align with the target group and maximize educational benefit" [24, 25].

3. Conclusions - Discussion

Crisis management in the school environment is a matter of crucial importance, as demonstrated by the key findings of the present study. Of primary importance is the need for comprehensive planning, as educational institutions must have detailed and well-structured emergency plans that cover a wide range of potential crises. These plans must be carefully designed to address different scenarios and anticipate the necessary actions for each case. A comprehensive crisis management plan includes the establishment of a coordinating committee to assess needs and potential types of crises, the integration of strategies that take into account the psychological impact of crises on students and staff, the development of specific protocols for different types of crises (such as natural disasters, violence, or individual crises), and the use of assessment tools, such as the Comprehensive Crisis Planning Checklist (CCPC-2) for evaluating the completeness of plans.

Equally important is the training of human resources. Both teachers and students need to receive systematic training in crisis management, as this ensures effective response in emergencies. This training must be continuous and regularly updated to maintain a high level of preparedness. Disaster preparedness education for both students and their families serves as a cornerstone for the development of disaster-resilient schools. Simultaneous education enhances cooperation and effectiveness in emergencies. Teaching resilience, providing counseling, and informing about the psychological effects of disasters improve everyone's response. Integrating disaster education into the curriculum, in the form of credit units and special teaching materials, ensures the transmission of necessary knowledge and skills. However, the effectiveness of education depends on its adaptation to the needs of each school and student group.

The research also highlights the importance of collaboration with the wider community. Interconnection and coordination with local authorities, organizations, and other relevant bodies are vital factors for successfully dealing with large-scale crises. This collaboration allows for the utilization of additional resources and specialized know-how, significantly enhancing crisis management capabilities. The development of effective strategies for creating disaster-resilient schools has been the subject of thorough research. Experts emphasize the need for optimizing building components, such as constructing schools with optimized architectural and physical structure, as well as identifying the appropriate area, by selecting the most suitable locations for school buildings, in order to minimize the impacts of a natural disaster.

Particular emphasis is placed on the psychological support of school community members after a crisis. This aspect of crisis management is equally critical to the immediate response to the incident, as it contributes to the restoration of normalcy and the healing of psychological traumas that may have been caused. Psychological support is crucial both during and after a crisis, as people often need help to cope with the consequences of traumatic events.

Finally, the need for flexible crisis management systems emerges. Schools must develop mechanisms that can adapt quickly and effectively to the different demands and conditions that may arise during a crisis. This flexibility is crucial for successfully managing unforeseen situations and minimizing negative impacts on the school community. Although comprehensive planning is vital, schools must remain adaptable and continually update their strategies, recognizing the unpredictability of crises.

Overall, effective crisis management in a school environment requires a comprehensive approach that includes strategic planning, effective leadership, and effective communication, in order to address various potential crises, from natural disasters to violent incidents. Systematic underestimation of the importance of preparedness for unforeseen events carries the potential risk of undermining the resilience of educational organizations, making them vulnerable to significant operational disruptions and poorly equipped to effectively respond to emergencies. The present study highlights the critical need for the development of a comprehensive and proactive crisis management framework to ensure the safety and well-being of students and staff, as well as to maintain educational continuity in adverse situations.

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