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Disaster Prevention and Management: A Critical Review of The Literature

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Abstract: This article explores disaster management, focusing on ethical considerations and fair allocation of relief resources in public health disasters. Disasters require emergency resources to aid and protect affected populations, raising ethical questions about fair allocation of relief funds for speedy recovery. Research in crisis situations presents moral dilemmas, balancing the ethical obligation to protect study participants' interests with the necessity for research. This literature review examines these topics in disaster response and recovery, emphasizing virtues such as caution, courage, justice, stewardship, vigilance, resilience, selfless charity, and communication in catastrophe response. Using the PRISMA method, relevant peer-reviewed articles were selected, highlighting the need for further research in disaster mitigation and management. The paper emphasizes the importance of justice and ethics in crisis situations, underlining the fundamental role of ethics in driving societal changes. Intending to enhance disaster management, this study introduces ethical concepts to stimulate discussions among disaster responders and managers. As an original contribution, this paper provides valuable insights for disaster management students and educators, significantly contributing to understanding the relationship between disaster prevention and management, and offering relevant recommendations to enhance disaster management outcomes.

Keywords: Critical; Disaster; Literature Review; Management; Prevention

Introduction

Effective management of disasters necessitates a well-coordinated and interdisciplinary response, ensuring the timely delivery of essential relief resources such as transportation, food, water, and medical supplies to the affected areas. The comprehensive approach to disaster response involves the involvement of various medical professionals, including paramedics, physicians, nurses, as well as personnel from the fire department and security forces, which may even include military personnel. In these extraordinary circumstances, disaster responders may encounter unfamiliar situations that put their professional ethics, typically applicable in routine emergencies and healthcare settings, to the test. Existing research often concentrates on the immediate consequences of natural disasters, neglecting to thoroughly investigate their long-term effects (Noy and DuPont, 2018; Fakhry et al., 2018; Chehabeddine, Tvaronavičienė, 2020). In the short term, it is reasonable to assume that farms ravaged by disasters will experience a lack of harvest, and damaged factories will suffer reduced output, resulting in an inevitable negative impact on overall production. However, speculating about the long-term repercussions of natural disasters is more intricate. Over time, new crops are likely to be planted on farms, damages to factories are likely to be repaired, and

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production levels are likely to recover to a state of equilibrium. Moreover, the destruction caused by natural disasters might create opportunities for improved investment in new technologies, potentially leading to higher output in the long run. Therefore, the long-term effects of natural disasters can vary, being either positive, negative, or neutral depending on the post-disaster relief efforts and subsequent investments made (Rempel, 2010).

Care Rationing in Disasters

In times of disasters, the allocation of care and resources becomes a critical issue. The overwhelming demand for medical attention and limited availability of resources often necessitates the implementation of care rationing strategies. During such situations, healthcare providers face the challenging task of making difficult decisions regarding the fair distribution of limited resources to maximize the overall benefit for the affected population. Rationing care in disasters involves establishing guidelines and protocols to prioritize patients based on factors such as the severity of their condition, likelihood of survival, and potential for future quality of life. These choices are made to make sure that resources are used in a way that benefits the greatest amount of people.

Ethical considerations play a crucial role in the process of care rationing. Principles such as fairness, transparency, and accountability guide the decision-making process. It is essential to avoid discrimination and biases when determining who receives care and who does not. Decision-makers must also consider the long-term implications and consequences of their choices, striving to uphold the ethical principles of beneficence and justice. Public engagement and clear communication are vital in ensuring the acceptance and understanding of care rationing measures. It is important to involve the community, healthcare professionals, and relevant stakeholders in the development of rationing guidelines to promote transparency and inclusivity. Rationing care in disasters is a complex and ethically challenging task, but it is a necessary aspect of managing limited resources effectively in times of crisis. By adhering to ethical principles and involving all stakeholders, the aim is to ensure that care is provided in a fair and equitable manner, ultimately saving as many lives as possible.

Triage in Disasters

Triage is a well-established system used for the medical evaluation and prioritization of patients based on their treatment needs and the available resources. It is commonly applied in various settings, including prehospital care, disaster response, emergency rooms, intensive care units, waiting lists for life-saving treatments like organ transplants, and even in battlefield situations (Repin et al., 2005). However, it is important to note that the process of triage in a mass casualty event significantly differs from the triage conducted in day-to-day care within healthcare facilities. In routine operations of emergency rooms or healthcare facilities, triage aims to prioritize the sickest individuals and provide them with all the available life-saving treatments, including transferring them to specialized care facilities with advanced medical techniques to prolong their lives. Even when the chances of survival are low, in regular emergency healthcare, the ethical duty of caregivers is to assess and treat every patient who seeks help in the emergency room.

In the context of mass casualty events or disasters, triage takes on a different role due to the overwhelming number of patients and limited resources. In these situations, the focus shifts towards maximizing the overall benefit for the greatest number of people. Triage protocols may involve categorizing patients into different priority levels based on the severity of their injuries or illnesses, the likelihood of survival, and the potential for a positive outcome with available treatments. These difficult decisions are made in an ethical framework with the aim of allocating resources in a way that saves as many lives as possible and provides the best possible care given the circumstances. It is crucial to recognize that triage is a challenging and ethically demanding process, particularly in mass casualty events. Healthcare professionals must strive to uphold ethical principles such as fairness, transparency, and accountability when making these difficult decisions. Public understanding and engagement are essential in promoting acceptance and trust in the triage process during crises. Overall, triage serves as a critical tool for healthcare providers to navigate the complexities of resource allocation and prioritize care in both routine and mass casualty situations, with the ultimate goal of saving lives and optimizing outcomes.

Ethical Challenges in Disaster Research

Major catastrophes like the recent earthquake in Haiti, Hurricane Katrina, 9/11, and the 2004 tsunami in the Indian Ocean provide evidence of the challenges faced by disaster researchers in protecting and honoring human rights (Sumathipala, 2008). These difficulties are made even more obvious by the fact that disasters cross international boundaries and deepen the gap between and among developed and developing country societies. Sumathipala (2008) asserts there have been instances where doctoral students from developed countries arrived to conduct research for their studies, but their presence sometimes made the affected individuals feel

harassed during surveys. Furthermore, due to a lack of local knowledge and unfamiliarity with cultural norms, researchers unintentionally created situations that offended cultural sensitivities. Nonetheless, by collaborating closely, researchers and ethicists can address and overcome these issues.

Professionals in disaster management understand that when faced with numerous victims and little resources, the standard rules guiding medical care do not apply. In such circumstances, the usual standards of care for healthcare cannot be put into practice. In order to allocate resources in a morally and professionally responsible way, while respecting the rights and privileges of every person and working to achieve the greatest overall benefit, triage, a crucial component of disaster response, becomes necessary. According to Mill (1867), "Each person's happiness is good for that person, and the general happiness must be good for the collective of all individuals" (p. 53). This idea supports utilitarianism by focusing on the greater good. In addition, triage's utilitarian approach is consistent with justice. Justice is separate from the larger moral framework, according to Rawls and Aristotle, who distinguished it from other positive virtues. According to Mill's viewpoint, triage's utilitarian nature promotes justice since it prioritizes the health of the greatest number of individuals based on the equality required by the circumstance, rather than on outside variables. The triage of disasters is built on this idea. State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Method

Approach to Search

The study utilized the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, chosen for its ability to reduce bias and enhance data selection quality (Gholizadeh et al., 2020). The PRISMA methodology guided the search process across multiple databases, including EBSCO, ProQuest, PubMed, and Scopus. In addition to electronic databases, grey literature sources were manually searched, and references and citations in relevant publications were meticulously reviewed.

Article Selection

This research employed a rigorous systematic literature review approach, integrating scholarly articles from reputable databases like Scopus, Web of Science, and EBSCOhost. A meticulous selection process led to the inclusion of 30 peer-reviewed English journal articles. These chosen publications underwent in-depth analysis, utilizing a thematic framework to extract meaningful insights and trends. The method of Preview, Questions, Read, and Summarize, developed by Cohen (1990) and endorsed by Cronin et al. (2008), was applied in the article selection process. During the initial screening, article abstracts were evaluated for relevance and categorized as qualitative, quantitative, or mixed methods. Only articles presenting empirical research, specifically focusing on perceptions of preparedness, were considered for the study. Subsequently, the entire content of the identified articles was comprehensively read and compared against predefined inclusion criteria. These criteria encompassed empirical, peer-reviewed studies concentrating on the subject of Disaster Prevention and Management. For a visual representation of this selection process, please refer to Figure 1 in the PRISMA diagram.

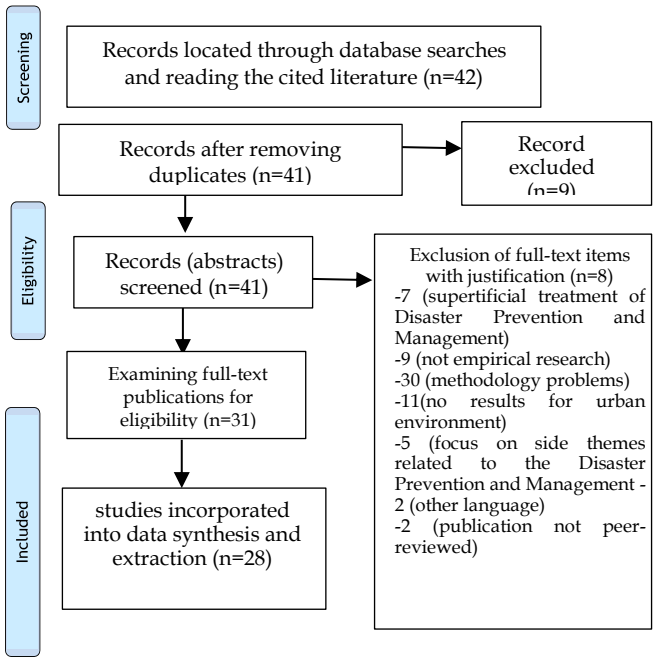

Figure 1. Diagram illustrating the PRISMA review process

Result and Discussion

Researchers utilized a matrix to organize various elements of the study, including the focal point, subjects, research design, data collection sources, revised variables and categories, analysis process, main results, conclusions, and potential biases. The validation of this data was conducted collectively. In the subsequent phase, a set of analytical categories that aligned with the research questions was proposed. Initially, a rough deductive coding was implemented, allowing for the emergence of additional categories through an inductive approach to further refine the initial analytical proposal.

For a research question

Both empirically and theoretically, figuring out the long-term effects of natural disasters is difficult. The long-term impact of natural disasters on output and economic growth is not easily predicted theoretically. Traditional neoclassical growth models predict that a natural disaster's negative capital shock will have no long-term influence on growth since it will not materially slow down the pace of technological advancement. Instead, endogenous growth models that take into account

The idea of creative destruction contend that negative capital shocks might encourage reinvestment and upgrading of capital goods, which will result in greater growth (Heger & Neumayer, 2019; Purnawati et al., 2022; Souisa & Sapulete, 2021). However, endogenous growth models that assume increasing returns to capital may predict a lower growth outlook. Empirically, estimating the long-term effects requires collecting data for several years both before and after the occurrence of disasters. In some cases, sufficient data may not be available to draw statistically significant inferences. Additionally, due to the presence of various factors influencing long-term output, it is challenging to isolate the specific impact of a disaster from the effects of other factors.

Examining the aforementioned risk reduction goals reveals that most institutional and governmental mechanisms have fallen short in addressing critical issues like risk communication, addressing the causes of disasters, and incorporating sustainable development goals into the disaster management cycle. Additionally, there hasn't been much done to actively incorporate communities in any aspect of policy development, planning, or implementation. The complex interplay of social, political, and economic factors, including institutional hierarchy, population growth, urbanization trends, and environmental degradation, has continued to be a challenge for the post-2005 establishment of national and provincial disaster management structures (Halvorson and Hamilton, 2010; Ahmed, 2013).

According to Ibrahim's classification from 2007, there are three different sorts of disasters: natural, man-made, and hybrid. Natural disasters are catastrophic occurrences brought on by uncontrollable natural forces including earthquakes, tornadoes, and volcanic eruptions. On the other hand, man-made disasters are the outcome of human choices and deeds. Disasters on land, at sea, or in the air are examples. Disasters that include both natural and human-made factors can be fatal. A hybrid disaster is when there has been considerable deforestation, which causes soil erosion, and then there has been a lot of rain, which causes landslides.

The public interest will be decided upon by citizen involvement in governmental decision-making processes, including disaster management, according to conventional democratic thought. However, the idea of resilience has long been connected to societies' and places' capacity to deal with and get ready for both anticipated and unforeseen risks and disasters in the field of disaster studies and hazards management. Even in the absence of official training and structure, the ability of a community to respond successfully is regarded as a significant route for local citizens and groups to get involved (Fauza et al., 2023, Thornley et al., 2015). This type of participation is deemed desirable due to the effectiveness of involving communities that have local knowledge and skills that can be used during disaster response and recovery efforts in addition to the limitations on government resources (Thornley et al., 2015; Vallance, 2011). In essence, effective disaster mitigation depends on empowering populations that are at risk. However, the contributions that communities may make in this regard are frequently overlooked or devalued.

The geographical environment, stakeholder power dynamics, cultural views, and resource accessibility are just a few of the variables that might affect how much participation there is in public decision-making processes (Yustina et al., 2022; Reed, 2008). Depending on the goals, scope, and timing of the evaluation, the same criteria may occasionally be used to assess both the process and the result. For instance, variables like empowerment, fairness, and transparency are often employed as criteria for both the process and outcome assessment. Recently, there has been a growing recognition of the need for a more integrated approach that establishes connections between the process and outcomes of public participation.

More generally, there is a rising argument that local communities ought to actively participate in identifying their own weaknesses and strengths. Similar to this, several scholars have recently argued in favor of community participation in the planning, execution, and monitoring of their development plans (Samaddar et al., 2015; Asrizal et al., 2023; Yani et al., 2023). Adopting community engagement in disaster risk management has many benefits, including better decision-making acceptability, conflict resolution, greater preparedness, empowerment, and community self-reliance (Shaw, 2006). Although it is acknowledged that local communities should be included in disaster management and programming, the specific ways in which communities might participate and the outcomes that may result rely on a variety of factors, including culture and educational attainment.

To overcome these challenges, the establishment of a participatory planning process is recommended. This approach combines top-down and bottom-up decision-making methods, ensuring the involvement of all stakeholders based on principles of equity. Responsible municipal authorities, river basin organizations, regional development authorities, academic institutions, the commercial sector, non-governmental organizations (NGOs), concerned people, and communities are some of the players involved in this process. A thorough understanding of flood risks can be attained by incorporating stakeholder knowledge from many angles. This strategy gives residents of the impacted communities a chance to express their needs and fight for their inclusion in the decision-making process. Engaging stakeholders enables the identification and implementation of flood management measures that are both effective and sustainable, as they receive support from the majority of stakeholders involved.

Our country has historically depended primarily on the government to manage the risks connected with disasters. All levels of government are, however, being impacted by the modern world's shifting realities as they work to strengthen our country's resilience while being constrained by their own capacity. There are still large gaps in access and services, even in smaller to medium-sized disasters where the government is typically effective in its administration. Government capacities and resources may be exhausted in

The event of major catastrophes. Disasters are becoming more severe and larger, which could pose systemic risks. Moreover, the management of disaster effects is becoming more difficult due to the quick changes in demographic patterns and technology. Therefore, the current and future trend in disaster handling or management involves active participation and involvement of the community in the process.

Through the use of village and union disaster management committees, some organizations, such as the Rural Support Programmes Network and its affiliated bodies, enable communities to participate in disaster risk reduction (DRR) and climate change adaptation activities, thereby improving their preparedness (Gunada et al., 2020; Ahmed, 2013; Riyansyah & Masturi, 2023). These elements must be included in disaster management plans in developing countries. To examine a holistic and integrated approach to disaster governance that minimizes bureaucracy while utilizing local knowledge, expertise, and experiences and creating institutional capacities for DRR, mitigation, and management, more research and analysis are needed.

To the authors' understanding, this research provides the inaugural systematic review of studies examining the potential ways to facilitate various phases of natural disaster management. Consequently, this study serves as a valuable addition to existing literature reviews that explore the interconnectedness of disaster prevention and management. The proposed framework delivers timely recommendations for planners, developers, and other essential stakeholders to enhance disaster management outcomes by capitalizing on relevant initiatives. As a result, this work contributes to the advancement

Conclusion

Communities must be fully included in all steps of the disaster management process and encouraged to do so in order to maximize their potential and ability to handle disasters on their own. This includes involving local, community, religious, and civil society actors throughout the entire cycle of disaster management. The study also highlights the importance of capacity building and forming disaster response groups within communities to increase their organizational capabilities and lower their vulnerabilities. Raising public awareness and providing communities with necessary information and abilities are crucial in fostering a sense of ownership and ensuring the long-term sustainability of disaster prevention and mitigation projects. This study also brings attention to a consistent lack of involvement from civil society organizations in policies and plans related to disaster reduction and management. While many NGOs and civic organizations primarily support government agencies in relief efforts, they have proven they are capable of reaching and providing supplies in distant places that are unreachable to military teams and government apparatus. This demonstrates the importance of including local, community, religious, and civil society actors throughout the entire cycle of disaster management. Research on disaster management has changed from an emphasis on "loss reduction" to resilience, stressing community participation and involvement, as a result of the Hyogo Framework for Action. Communities must be fully included in all steps of the disaster management process and encouraged to do so in order to maximize their potential and ability to handle disasters on their own. But the framework for community-based disaster response acknowledges capacity building as a long-term project. In order to increase their organizational capabilities and provide them the ability to take action in lowering their vulnerabilities

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