

Study on Pathways to Enhance Public Emergency Response Capability from the Perspective of Resilience Theory

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Abstract: With the continuous advancement of globalization, in a social environment full of various risks, the public's emergency response capability to public emergencies has become an important component of the social emergency management system. It plays a key role in significantly reducing the impact of disasters, quickly restoring social order, and building long-term social resilience. From the perspective of resilience theory, this paper analyzes the current situation and shortcomings of the public's emergency response capability from the aspects of individual resilience, organizational resilience, and cultural resilience, reveals the root causes affecting the improvement of the public's emergency response capability level, and explores the direction of resilience building of the public's emergency response capability from both individual and social levels. This paper provides valuable insights for consolidating the foundation of the public's emergency response capability, a social emergency management system, and building a social environment that can effectively resist various risks and challenges and establish a highly reliable social emergency network.

Keywords: Resilience Theory; Public; Emergency Response Capability; Improvement

1. Introduction

With the accelerating pace of globalization, the natural environment is becoming increasingly complex, and public safety incidents are occurring frequently. The emergency response capability demonstrated by the public, as the basic unit of society, when facing emergencies plays a key role in mitigating the impact of disasters, restoring social order, and building long-term social resilience. Therefore, it is of

great practical significance and long-term social value to deeply explore the actual situation, existing shortcomings, and improvement methods and strategies of the public's emergency response capability.

From the perspective of resilience theory, strengthening the resilience of the public's emergency response capability can not only improve the public's self-protection level in crises but also promote cooperation and resource sharing among communities, thereby forming a more flexible and efficient social emergency network. On the one hand, this can help alleviate the pressure on governments and professional rescue agencies; on the other hand, it can effectively enhance the overall risk resistance capacity of society and lay a solid foundation for creating a safe, stable, and sustainable social environment. This paper in-depth analyzes the current situation and challenges of the public's emergency response capability from the three levels of individual resilience, organizational resilience, and cultural resilience, and explores effective ways to build resilience in the public's emergency response capability based on resilience theory, providing valuable reference for the optimization and upgrading of the social emergency management system.

2. The Relationship between Resilience Theory and Public Emergency Response Capability

2.1 The Connotation of Resilience Theory

The concept of resilience originates from the Latin word "resilio/resiliere," meaning "to rebound" or "to spring back." In the early 19th century, it specifically referred to the "ability of a material to resist breaking or fracturing when deformed" in physics. [1] In the early 1970s, ecologist Holling applied the concept of resilience to systems ecology, defining it as the "persistence of systems and the capacity of

their self-organization to create and maintain the conditions for life in the face of disturbance." [2] In socio-ecological systems, resilience is seen as "the ability to absorb disturbances and reorganize while undergoing change so as to retain essentially the same function, structure, identity, and feedbacks." [3] In the context of emergency management, resilience is a manifestation of emergency response capability, reflecting the ability to cope with external risks and disturbances. The stronger the resilience of emergency response capability, the more stable the emergency response system will be, and it will not be easily devastated by risk shocks. On the one hand, it is reflected in the rapid recovery ability based on sufficient material resources (including preparedness and emergency guarantees) at the material level, and on the other hand, it is reflected in the individual's psychological tolerance, optimistic and positive attitude, and good social relations and social support in the society at the spiritual level.

2.2 The Composition of Public Emergency Response Capability

Robert Heath argues in his book "Crisis Management" that "emergency capability, in the sense of emergency management, is the ability to prevent and respond to emergencies." [4] Zhou Pengsen (2021) and other scholars believe that "public emergency response capability is the ability of the public to improve their understanding of emergencies through active learning and participation in knowledge and drills related to emergency response, and to be able to conduct self-rescue and mutual aid at the first time after the occurrence of emergencies, thereby reducing the impact of emergencies." [5] In academic research, Yang Yu (2008) believes that "the emergency response capability of the general public is a kind of individual psychological characteristic formed by the general public through planned and purposeful learning and training to effectively respond to emergencies, including early warning ability, self-rescue ability, and mutual aid ability." [6] Wang Xingping (2012) believes that "the public's emergency response capability mainly includes disaster preparedness awareness, psychological emergency response capability, self-rescue and mutual aid ability, and

emergency cooperation ability." [7] From the perspective of resilience theory, many scholars at home and abroad have successively conducted research on resilience theory from different scenarios and dimensions, initially forming a widely recognized and relatively complete conceptual system. A more representative view is that "resistance, absorption, and recovery" are the three main characteristics of resilience. Pan Haixiao et al. (2021) believe that the capacity framework of a resilient city should include three basic capabilities, namely "immunity, healing ability, and recovery ability." [8]

This paper argues that, when faced with public emergencies in modern society, the public's emergency response capability is not only reflected in the process of responding as individuals but also in the support provided by their social organizations and cultural environment. Therefore, their emergency response capability should be a comprehensive reflection of individual resilience, organizational resilience, and cultural resilience:

(1) Individual Resilience

This refers to an individual's ability to quickly adjust their mindset, take effective actions, and return to normalcy when faced with emergencies or stressful situations. In emergency management, individual resilience is manifested in the material resources, survival skills, psychological resilience, and self-rescue and mutual aid abilities possessed by individuals during a disaster. Individuals with strong individual resilience can calmly respond to emergencies, take appropriate emergency measures, and mitigate the negative impacts of disasters. This resilience characteristic is of great significance for improving the overall emergency response capacity and resilience of society.

(2) Organizational Resilience

In the context of emergency management, this refers to the ability of enterprises, institutions, communities, and other organizations to respond quickly, coordinate cooperation, and recover and rebuild after a disaster. When the public is in an organization with strong organizational resilience, they can quickly initiate emergency plans, allocate resources, organize rescue efforts, and quickly restore production and living order after a disaster. Therefore, in modern society, organizational

resilience is crucial for the support of the public within it.

(3) Cultural Resilience

In the context of responding to emergencies, cultural resilience is manifested as "the recognition and inheritance of emergency culture by members of society, as well as the ability to respond and recover together in the event of a disaster. Human communities are rich in complex networks of interpersonal interactions, and it is these mutual assistance and social relationships among people that are the primary sources of urban resilience." [9] A society with strong cultural resilience can form a common emergency awareness and values, promote mutual assistance and cooperation among the public, and improve the overall emergency response capacity and resilience of the society. This resilience characteristic is of great significance for enhancing the public's emergency response capability and promoting the improvement and development of the emergency management system.

3. Deconstruction and Examination of Deficiencies in Public Emergency Response Capability from the Perspective of Resilience Theory

The resilience characteristics of public emergency response capability are interrelated and mutually reinforcing in terms of individual resilience, organizational resilience, and cultural resilience, jointly constituting a comprehensive resilience system for public emergency response capability. At present, there are varying degrees of deficiencies in the above three aspects, which urgently need to be comprehensively improved to provide strong guarantees for responding to various public emergencies.

3.1 Individual Resilience

The current deficiencies in individual resilience mainly manifest in the deficiencies of individuals in terms of material resources, survival skills, psychological resilience, and self-rescue and mutual aid abilities when public emergencies occur.

3.1.1 Deficiencies in material preparation

Emergency material reserves are an important standard for measuring the redundancy of the public's ability to respond to emergencies. Proactive material preparation greatly increases an individual's survival rate in the

initial stages of a disaster, providing material guarantees for reducing various risk hazards, minimizing losses, accelerating recovery and reconstruction, and maintaining social stability. Guiding the public to conduct emergency material reserves at the individual and family levels is an important supplement to the entire emergency material reserve system. However, at present, the public's attention to this work is still insufficient. This leads to a vacuum in the early allocation and use of emergency materials, easily triggering looting, hoarding of materials, and other chaos, which further undermines the public's psychological defense against emergencies and is not conducive to the smooth conduct of emergency management; on the other hand, limited storage conditions, insufficient storage quantity and variety, and untimely updates of expired materials are also common problems.

3.1.2 Deficiencies in coping skills

Diverse and exquisite survival skills are key ability elements for individuals to survive in disaster situations. These include the ability to perceive risks before emergencies occur, the ability to accurately identify and build safe shelters in emergency environments, and the ability to skillfully use escape skills specified in emergency plans. Technical resilience is also closely related to the comprehensive popularization of intelligent monitoring, early warning, and alarm systems. For example, in some high-rise buildings, if the public cannot master and use the relevant escape techniques and means under the premise that the intelligent monitoring and emergency response system for fire accidents can operate, once a fire occurs and spreads to the top floor, they often miss the best escape time.

3.1.3 Deficiencies in psychological resilience

Stable and resilient psychological resilience and a calm and optimistic psychological state are the internal sources of power that support individuals to hold on to hope under the mental pressure caused by fear, despair, and uncertainty brought about by disasters. Individuals with strong psychological resilience can quickly activate psychological adjustment mechanisms under the impact of disasters, maintain a calm and rational thinking state, and not be shaken by short-term difficulties, continuing to actively seek effective ways to solve crises. However, some members of the public, when faced with

sudden disasters, face multiple pressures such as the loss of loved ones, injuries, and isolation, and their psychological defenses are fragile. The fear and anxiety brought about by disasters often cause them to lose their judgment and ability to act, manifesting excessive panic, anxiety, and depression, affecting their physical and mental health and normal life.

3.1.4 Lack of self-rescue and mutual aid ability

On the one hand, efficient and practical self-rescue ability is not only a powerful weapon for individual self-protection but also a key link in building a life-saving network at the scene of a disaster. On the other hand, the public are the first rescue force to appear at the scene of a public emergency, and the importance of mutual aid ability is self-evident. However, there are still many problems with the public's awareness and ability of mutual aid. In some emergencies, it has been shown that most people have not received formal self-rescue and mutual aid training and have simply waited for professional rescue, missing the best opportunity for rescue.

3.2 Organizational Resilience

"In terms of the combination of risk response entities, a single strong entity has limited resource allocation capacity and radiation range, while multiple decentralized and fragmented entities are prone to zero-sum games centered on self-interest." [10] In the recent COVID-19 epidemic, it can be seen that social organizations, including communities, enterprises, institutions, and non-governmental organizations, have successfully completed their missions, including assisting in nucleic acid testing and control, monitoring personnel flow, etc., effectively integrating volunteers, residents, and other diverse emergency entities, and alleviating the government's management pressure. However, there are still some shortcomings in terms of emergency plans, resource allocation, and rescue coordination.

3.2.1 Imperfections in the accuracy and activation of emergency plans

On the one hand, there is a problem of poor practicality in the plans. The emergency plans of some enterprises, institutions, and communities are only general outlines and do not formulate detailed and practical response steps for different types, scales, and possible

complex situations of disasters. For example, earthquake plans do not clearly specify the evacuation routes for people inside buildings and arrangements for rescuing special groups, affecting the effectiveness of activation. On the other hand, there is the problem of untimely activation of plans. In the face of disasters, the organization's information collection and evaluation system lags behind, making it difficult to accurately and timely judge the disaster level and scope of influence, leading to the inability to quickly trigger emergency plans.

3.2.2 The need to improve resource allocation capabilities

In terms of resource reserves, enterprises, institutions, and communities have incomplete and insufficient reserves of emergency materials. For example, during the epidemic prevention and control, communities lacked reserves of masks, protective clothing, and disinfectants, unable to meet the needs of residents. At the same time, there is a lack of efficient resource allocation mechanisms within and between organizations. When disasters occur, the material allocation process is cumbersome, and information transmission is not smooth. For example, cross-regional rescue material transportation, due to difficulties in coordination between departments, leads to the inability of materials to be delivered to the affected organizations in a timely manner.

3.2.3 Poor communication and coordination in organizational rescue

Different departments within enterprises, institutions, and communities have unclear responsibilities and poor communication in emergency rescue, which can easily lead to gaps in rescue or duplication of work. For example, in the event of a fire, the timely transmission of information between community property, security, and fire departments affects rescue efficiency. At the same time, the cooperation mechanism with external professional rescue forces and other organizations is imperfect. When disasters exceed their own response capabilities, they cannot quickly obtain effective external support. For example, in the event of a major safety accident in a remote area enterprise, due to the lack of normalized cooperation with surrounding professional rescue teams, rescue is delayed. In addition, there is a phenomenon

of uneven quality of public self-organized emergency rescue teams.

3.3 Cultural Resilience

Cultural resilience is a comprehensive consideration of the level of emergency culture education, covering the popularity of public emergency management knowledge and skills and the strength of emergency awareness, and constitutes the spiritual core of the construction of public emergency response capabilities. In regions with strong cultural resilience, emergency mobilization capabilities are prominent. The public and various emergency entities are closely linked, and throughout the entire emergency management process, they support and cooperate with each other. This not only ensures the smooth flow of information and the efficient allocation of resources but also creates a collective environment and atmosphere for actively responding to risks, with all parties working together to contribute to the emergency management of emergencies. At present, there are many shortcomings in the development process of cultural resilience, mainly in the following areas:

3.3.1 Insufficient depth and breadth of emergency culture education

In some remote and rural areas, the promotion of emergency culture education is relatively weak. Taking earthquake emergency knowledge as an example, some residents in remote rural areas have little knowledge of how to properly take precautions and escape when an earthquake occurs, because relevant departments have failed to effectively cover these areas with educational resources. On the other hand, the content of emergency culture lacks targeting. Different age groups and occupational groups have different needs for emergency knowledge. However, the current emergency culture education content is seriously "one-size-fits-all", such as using the same complex online graphic form for emergency education for the elderly as for young people, making it difficult for the elderly to absorb knowledge.

3.3.2 Uneven public emergency awareness

Due to differences in educational background, life experience, cultural background, and social environment, the public has differences in their level of knowledge of emergency knowledge, skill levels, and attitudes. Some

members of the public have a positive attitude towards emergencies and are willing to learn and practice emergency knowledge, while others may lack the preparation to respond due to fear, avoidance, and other psychological factors. Some members of the public lack vigilance against potential daily risks.

3.3.3 Difficulties in emergency culture education and publicity

On the one hand, the coverage of social emergency culture education is insufficient, and the frequency of emergency drills for communities is low, and there is little customized education for special groups such as the elderly, children, and the disabled. On the other hand, there is insufficient pre-accident emergency management safety publicity. The current emergency culture communication is often concentrated publicity after an accident occurs, such as conducting centralized inspections of hotels and publicizing hotel safety after a fire in a hotel; publicizing electric vehicle safety when electric vehicle fires occur frequently. This type of publicity lacks foresight and systematicness and cannot establish a complete emergency culture system.

4. Exploring Pathways to Enhance the Resilience of Public Emergency Response Capability

4.1 Individual Level

4.1.1 Cultivating a positive mindset and building psychological defense

In the system for improving individual emergency response capabilities, cultivating a positive mindset among the public is paramount. A positive mindset is like a beacon in the dark, providing guidance when facing difficulties and setbacks. At the same time, guiding oneself to think positively and, when encountering problems, not immediately falling into negative emotions but instead thinking about the possibilities and methods of solving problems. Over time, the public can gradually cultivate the courage and confidence to face difficulties and setbacks. For example, in the ruins after an earthquake, people with a positive mindset are more likely to remain calm, wait for rescue, and seek opportunities for survival.

4.1.2 Drawing on the power of experience to improve response effectiveness

Learning from and accumulating successful experiences in responding to disasters is an effective way to improve the public's ability to respond to emergencies. On the one hand, by reading relevant books, watching documentaries, and participating in emergency training courses, one can learn about coping strategies for different types of disasters. On the other hand, it is important to enhance one's sense of efficacy in daily life. Break down the big goal of responding to disasters into small goals, such as learning a new emergency skill each month and conducting a family emergency drill each year. When successfully completing these small goals, an individual's self-confidence is enhanced, and the accumulated successful experiences can also lay a foundation for meeting big challenges. In terms of material reserves during the epidemic, advance planning, and reasonable arrangements for purchasing time and types of materials can avoid the psychological burden and waste of resources caused by excessive hoarding of materials, which is also an important means of enhancing resilience.

4.1.3 Building interpersonal networks to obtain emotional support

Seeking support and building good interpersonal relationships under normal circumstances plays an indispensable role in enhancing individual emergency resilience. Sharing one's feelings and confusion with family, friends, and colleagues to build a social relationship network of mutual trust and close connection. When a real emergency occurs, this close interpersonal network can provide individuals with strong psychological support and practical help, helping individuals better cope with difficulties and improve overall emergency resilience.

4.2 Social Level

4.2.1 Developing a strong and resilient social system

China's unique characteristics have demonstrated incomparable advantages in the field of emergency management. As in the prevention and control of the COVID-19 epidemic, this system has demonstrated strong mobilization capabilities, efficient organizational and coordination capabilities, and powerful resource allocation capabilities. All levels of government responded quickly, forming large-scale medical teams to rush to

the front line of the fight against the epidemic in a short period of time, and carried out all-round nucleic acid testing, isolation control, and other work. Community workers and volunteers actively participated, ensuring the supply of living materials for residents, forming a powerful force for the whole people to fight the epidemic. This institutional advantage provides a solid institutional support for building a strong and resilient emergency response capacity for the public, ensuring that in the face of various emergencies, social forces can be organized quickly and orderly to minimize disaster losses.

4.2.2 Building a strong material foundation and technological productivity

A strong material foundation is the backbone of society's response to emergencies. China has the most complete and largest industrial system in the world, which means that when facing the demand for emergency supplies, it can achieve rapid autonomous production and supply. For example, in the early stages of the epidemic when there was a shortage of protective materials such as masks, many domestic enterprises quickly adjusted their production lines and significantly increased their mask production capacity in a short period, not only meeting domestic demand but also supporting the global fight against the epidemic. At the same time, this also lays the foundation for building strong human resource resilience, industrial system resilience, and technological strength resilience.

4.2.3 Building a full-process emergency management mechanism

Building a full-process emergency management mechanism covers all stages from prevention, preparation, response to recovery. In the prevention stage, by strengthening risk assessment and monitoring and establishing and improving various risk early warning systems, potential risks such as natural disasters, public health events, and safety production accidents are monitored and analyzed in real time. For example, in terms of natural disaster early warning, China continues to improve its monitoring network, improving the accuracy and timeliness of forecasts, and issuing early warning information to the public in advance to prepare for prevention.

4.2.4 Continuously improving emergency management culture

Emergency management culture is the social background environment that supports the public's response to emergencies. On the one hand, by strengthening emergency knowledge publicity and education, using various channels such as school education, community publicity, and media dissemination, and widely carrying out emergency knowledge popularization activities, emergency culture can be strengthened, and the public's emergency awareness and self-rescue and mutual aid capabilities can be improved. For example, schools include emergency knowledge in the curriculum and organize students to conduct emergency drills regularly; communities popularize emergency escape knowledge for residents through lectures, distribution of publicity materials, etc., and on the basis of carrying out community publicity education, guide the public to establish a consensus on participating in emergency management; on the other hand, by strengthening the ties between residents within the community, establishing a close social network, "enhancing residents' sense of community identity and belonging, allowing residents to closely link themselves with the development of the community, and promoting residents to strengthen disaster self-rescue in community development." [11] By promoting the social spirit of unity, cooperation, and mutual assistance, strengthening the promotion of advanced emergency management experiences and typical cases when facing emergencies, and encouraging the public to actively participate in volunteer services, a good cultural atmosphere for the whole society to jointly respond to disasters can be formed, which can guide all sectors of society to continuously improve their emergency response capabilities and promote the continuous improvement of emergency management culture.

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