

Study on Resilience Governance Ability of Urban Communities Under the Interplay of "Pressure-structure-process-capacity"

-- Based on Case Tracking of Community Epidemic Prevention and Control in S City

Zeao Sun¹, Xiaohui Jiang^{2,*}

¹ College of Philosophy and Law, Shanghai Normal University, Shanghai, China

² College of Philosophy and Law, Shanghai Normal University, Shanghai, China

*Corresponding author e-mail: jiangxiaohui@shnu.edu.cn

Abstract: In the era of VUCA, emergencies and public crises in the process of urban governance under the perspective of complex systems are constantly impacting the safety, stability and order of urban operation. As the nerve endings of the urban governance system, communities are the front line of guarding urban security, and it is urgent to pay attention to the theoretical and practical exploration of community resilience governance. This paper analyses the influencing factors of community resilience based on the practice samples of epidemic prevention and control in 23 communities in S city, using the grounded theory. Based on the theoretical framework of community resilience governance of "pressure-structure-process-capability", it is extracted that the community, under the role of "pressure brought by the epidemic", can be adjusted through the "structural adjustment of the governing body" and "whole process of governance", which are the most important factors of community resilience governance. It is extracted that the community can generate "community resilience capacity" under the pressure of "epidemic" through the "adjustment of the structure of governance body" and the "construction of the whole process of governance chain". On the one hand, this study is dedicated to the localisation of the integration of community resilience theory, and on the other hand, it contributes to the modernisation of community safety governance practices and capacity building.

Keywords: Structure-process; functional embeddedness; community resilience; case tracking, S-city neighbourhoods.

1. Presentation of the Issue

In the era of VUCA, emergencies and public crises in the process of urban governance in the perspective of complex systems are constantly impacting the safety, stability and orderly operation of cities. The uncertainty of risks and the huge complexity of urban systems have brought great challenges to modern urban governance [1][2]. In this era filled of "grey rhinoceros" and "black swan" events, cities, as large-scale human gatherings, have become economic growth machines due to their innate agglomeration qualities, but also suffer immeasurable losses in the face of uncertain risk perturbations and crisis impacts[3]. Therefore, in the process of urban development, we should not only pay attention to the economic attributes of the city, but also pay attention to the risk attributes of the city, and co-ordinate development and safety. With the increasing complexity of the social environment and the emergence of extreme disasters, emerging risks, and compound disasters, the traditional safety governance model under the bureaucratic system appears somewhat rigid. The complexity of the governance object and the incompleteness of the governance system and capacity have led to the phenomena of "governance bias" and "emergency response failure" from time to time [4] [5]. In order to cope with the complexity of the object of governance, the concept of urban resilience came into being. Among them, the community, as the end of the entire urban mega-safety governance system, is the front line for preventing and resolving many risks and crises. Exploring a more adaptive community security governance model to minimise the loss of the city in the face of risk attacks is a reality that needs

urgent attention in the field of security governance. Therefore, building resilient communities is an integral part of resilient city construction, and how to enhance community resilience has also become a focus of researchers' attention. In addition, existing research mainly enters from the perspective of disaster prevention and mitigation, favouring spatial, physical and management process considerations, and relatively few analyse the community's adaptability in extraordinary times from the perspective of governance system and capacity [6]. Based on this, this paper will take community epidemic prevention and control in S city as an example to explore the practical logic and internal mechanism of community resilience governance from the practice of community resilience governance based on the analysis of grounded theory.

2. Review of Relevant Literature

2.1. On the genesis of resilient governance

Resilience thinking, which has its origins in Western engineering management, has gradually expanded into the ecological and social evolutionary domains to fulfil a certain conceptual metaphor [7]. Early on, engineering resilience recognised only that systems had a steady state, while the subsequent evolution of ecological resilience emphasised the ability of a system to survive regardless of whether or not its state changed [8]. This was followed by evolutionary resilience, which is considered to be the ability of complex social-ecological systems to adapt and change in response to stress [9]. Although scholars from different disciplines have different understandings of the concept of resilience, there is

a commonality: it is usually used to express two semantic meanings: firstly, the resilience of a substance or system in the face of external shocks, which can be understood as the extent to which it can absorb perturbation energy when it is subjected to shocks. Secondly, the resilience and adaptability of a substance or system to external shocks, emphasising the ability to adapt to new environments and to return quickly to a good state, or "bounce back to a better state" [10]. Godschalk D R., who proposed to combine the enhancement of physical system capacity and human community capacity to promote urban resilience [11]. Subsequent researchers have carried out studies on the concept, characteristics, evolutionary mechanisms and assessment criteria of urban resilience based on different research perspectives. What is a resilient city? It means that a city can still maintain its original main features, structure and key functions after being subjected to external disturbances [12]. Or it can be understood as the city's ability to survive, adapt and grow even when subjected to sudden shocks and long-term pressures, and it is a kind of resilience presented in the management of various risks and crises [13]. And the realisation of resilience is not achieved in a watery way, but through the joint drive of multiple levels, such as the governance level [14][15], the evolutionary mechanism level [16], and the factor level [17]. Zhu Zhengwei et al. defined urban resilience governance as: resilience governance is a disaster governance model [18] that advocates different public governance subjects within the city and community system to enhance their own adaptive capacity and that of their system to compound disaster risk shocks, and to establish a disaster governance model that covers all hazards and the whole process based on cooperative governance and organisational learning mechanisms. Yung Zhi argues that resilient governance can be regarded as the action and process of implementing scientific, agile and efficient risk response policy plans and organisational mobilisation to enhance urban resilience to risk shocks in a risky society, where multiple subjects dominated by public authority implement scientific, agile and efficient risk response policies and plans and organisational mobilisation through a close cooperative network, and multiple forms of mutual benefits and partnerships. In addition, there are also Cai Yurong, Chen Tao, and Lan Yuxin, etc., who put forward the viewpoint of resilient governance from the perspectives of the adaptive cycle [19] and the resilience of community governance system [20].

2.2. Progress in community resilience governance

In the construction of the whole urban resilience governance network, the community governance network is the end of the whole urban governance system, which plays an indispensable and important role in multiple aspects such as internal and external risk information perception, effective crisis meaning construction, immediate crisis response, and efficient execution mobilisation, so community resilience governance is particularly important [21][22]. Most researchers define community resilience as a collection of capabilities generated through a specific process [23][24]. Established community resilience research generally follows the research path of influencing factors, functioning mechanisms, assessment criteria, and enhancement paths in a sequential progression. For example, Yan Deru proposes that community resilience can be divided

into five levels: physical, organisational, institutional, technological, and psychological, and puts forward corresponding improvement paths [25]. Wu Xiaolin et al. deconstruct community resilience from the physical level, social-ecological level and community members' autonomy, and accordingly propose to enhance community resilience through the two-way construction of internal enhancement and external integration [26]. Zhang Wei deconstructed the influencing factors of community resilience from the three dimensions of subjective capacity, external resource input, and internal consensus [27]. Luo Qiangqiang et al. proposed that community resilience consists of five dimensions: organisation, system, technology, facilities, and residents, and correspondingly put forward the obstacles and enhancement paths of each dimension [28]. This paper argues that, whether it is urban resilience governance or community resilience governance, in addition to the differences in spatial scale, the essence is to hope that through the innovation and change of the governance level, to solve the problem of organisational resilience in the face of a variety of pressures in the risky society, and to achieve the organisational resilience capacity (the overall ability to control risks and respond to crises) to improve.

2.3. Literature review

Existing studies have found that macro-level urban resilient governance research is more concerned with theory construction, while micro-level grassroots resilient governance research is more concerned with the role of the mechanism and the path of realisation to explore, both of which have made great contributions to the theoretical study of resilient governance. However, in the field of community resilience governance, there is still some room for expansion. Firstly, there are still relatively few studies that interpret the production of community resilient governance capacity from the governance level. Second, in the existing research on community resilience governance, fewer researchers have attempted to clarify the relationship between the elements of community resilience governance, and thus have not constructed a holistic theoretical framework with strong explanatory power. Once again, most of the current research on community resilience discusses community resilience governance capacity building from the perspective of "Inevitability", and lacks the ability to analyse the current practice pattern of community resilience governance from the perspective of "Realism", and then distill its internal mechanism. To achieve this goal, it is necessary to rely on the analysis of existing community-related cases. In the field of emergency management case study, based on the comparative analysis of the two research methods of "system-structure" and "event-process", Prof. Tong Xing put forward the following proposal. The research paradigm of "structure-process" analysis [29]. The "structure-process" analysis method draws on the advantages of the first two methods, avoids the limitation of a single dimension, and realises the combination of the "particularity" of the case itself and the "universality" behind the case. The combination of the "particularity" of the case itself and the "universality" behind the case is realised. Therefore, this paper draws on the "structure-process" approach in the coding of the principal axes of grounded and the construction of the model.

3. Research Design and Case Studies

3.1. Research methodology

Grounded theory is based on empirical facts, collects qualitative research materials, and establishes a theoretical framework that is closely related to reality through the process of collating, analysing and coding the collected information. Compared with other qualitative research methods, grounded theory has a complete and relatively standardised set of operational processes, which not only improves the scientific nature of qualitative research, but also has strong practicality. grounded theory is applicable to factor identification, process interpretation, complexity and novelty research in public management research [30]. To study the problem of community resilience governance realisation is to answer the intrinsic mechanism between the system and practice of community governance and community resilience capacity. Then it is necessary to clarify the three core categories of community resilience governance system, resilience governance practice process and community resilience capacity, and then identify the influencing factors in order to dig deeper into the causal mechanism. Therefore, this paper chooses the research method of grounded theory.

3.2. Sample selection and data collection

Based on the typicality, accessibility and richness of information of the sample, this paper plans to select the community epidemic prevention and control in S city as a case study, and collect primary and secondary data through semi-structured interviews and online collection of relevant information. From 28 March to 1 June, S city implemented a city-wide closed management to control the

spread of the epidemic, which lasted 75 days, and the community, a grass-grounds organisation, played a great role in the prevention and control of the epidemic in Shanghai. Regardless of the success or failure of Shanghai's epidemic prevention and control, as one of China's megacities experiencing serious epidemic impacts, S City's real-life experience in coping with the impacts of the epidemic is invaluable. Therefore, it is important to analyse the highlights and shortcomings of the community resilience governance through the traversal and reflection on the community epidemic governance practices in S city, in order to enrich the theoretical spectrum of community resilience governance research and to sort out the practical logic of community resilience governance. The author of this article conducted in-depth interviews with leaders, community workers and residents.

The interviews were conducted with both openness and directionality, respecting the views and opinions of the interviewees while asking questions based on the interview outline. In the end, we obtained 25 first-hand transcripts of the interviews, 21 after eliminating invalid recordings, and a total of 436 minutes of audio interviews, with an effective interview rate of 84%. At the same time, for the issue of community epidemic management in Shanghai, 105 pieces of relevant information were obtained through the Internet search engine by searching the official government website, news reports, and video information of various media about the prevention and control of community epidemics in Shanghai. After carefully reading the interviews, we deleted 29 pieces of information with insufficient relevance and low information value for this study, and finally obtained 76 pieces of secondary data that could be used, and the final 97 pieces of data obtained (as shown in Table 1).

Table 1. Type and content of material

Material type	serial number	Collection sources	quantities
source material	A	Community leaders (main leaders and heads of community party organisation and neighbourhood committees)	21
	B	Community workers (permanent social workers, owners' committees, property owners, volunteers, grid workers and others involved in epidemic prevention and control)	
	C	Community Residents (people permanently residing in the community during the outbreak)	
Used materials	D	News story on community outbreak prevention and control	76
	E	Policy paper on community outbreak prevention and control	
	F	Other media information on community outbreak prevention and control	

3.3. Data processing and model construction

In the process of data processing, the collected audio and video materials were first converted into textual materials. After conversion into textual materials, the textual materials were numbered. Example of data numbering: A0101 (A stands for the source of the data being interviews with community leaders, A01 stands for the fact that the data came from the first community leader interviewed, and A0101 stands for the first piece of useful information obtained from the interview material of the first community leader). Of the 97 pieces of information collected, 12 were randomly selected and set aside for subsequent theory saturation testing. The remaining 85 profiles followed Strauss and Corbin's procedural research protocols and were grounded in an 'open

coding-major axis coding-selective coding' approach, whereby the qualitative data were continuously compared, analysed and summarised to extract relevant concepts and categories. Concepts and categories were extracted by comparing, analysing and summarising the qualitative data [31]. The theoretical framework of the study was finally established by sorting out the logical connections between the categories extracted and testing the theoretical saturation.

3.3.1. Open coding

In the open coding stage, no concepts were predetermined, and initial concepts were summarised by analysing and summarising the data in a meticulous and objective manner, and on the basis of the initial concepts, initial categories were refined. In this open coding, 17 primary data and 68 secondary

data were first coded, and after deleting some semantically similar concepts, a total of 458 initial concepts were generated, and then the categories were classified according to their connotations and extensions, resulting in 61 initial categories (see Table 2).

3.3.2. Spindle code

Axis coding is the discovery and establishment of various connections between conceptual categories after open coding, showing the connections between parts of the material, which may include causal, temporal, semantic, situational, etc. These connections may include causal, temporal, semantic, situational, etc. In this stage of the coding process, through analysing, comparing and sorting out the initial categories formed after open coding, and taking into account the context of the study, 16 sub-categories and 4 main categories relevant to this study were extracted (see Table 3).

3.3.3. Selective coding and model construction

Selective coding is centred on the core categories emerging

from the spindle coding process, and establishes a systematic link between the core categories and the other categories, further clarifying the logical relationships between the categories through the interaction of the information with the emerging theory, and ultimately demonstrating a theoretical framework. After comparing and analysing the four key categories that emerged from the spindle coding, it can be identified that community resilience governance capacity is the core category of this research. Around the core question of how community resilience governance capacity is generated, we can clearly straighten out the relationship between this core category and other important categories. That is, under the background of "multi-dimensional pressure" brought about by the epidemic, through the mutual construction and joint action of "adjusting the community governance structure" and "constructing the whole process of governance chain", to achieve The derivation of "community resilience governance capacity"(see figure.1).

Table 2. Open coding and initial category refinement

Initial scope	Initial concept	Reference number	Excerpts from the contents of the correspondence
cognitive stress	Virus characteristics unknown	A0101	The ability to transmit and the virulence of the new coronavirus is not well understood, so it is still scary.
	Unknowns in defence and control	B0103	All have taken preventive and control measures, but they are still spreading, so it's just not certain that they can be prevented.
	Duration unknown	C0507	At that time, no one knew when the epidemic would end, and no one dared to run around.
Reasons for participation	Position responsibilities	A0704	I am the head of the neighbourhood committee and I have to organise the community prevention and control work.
	devotion	B0503	At first everyone was scared, but there was a lack of manpower in the community for prevention and control. It just felt like someone had to step up, so I came out to help.
	Party members' sense of responsibility	E2101	I am a member of the Communist Party. When the country and the people need me, I should stick to the front line of the community and be righteous.
prevention and control	routine prevention and control	A0301	Strictly in accordance with the requirements of epidemic prevention and control, the entry and exit of people in the community was controlled to prevent the importation of the virus. The main task at that time was to check the trip codes and health codes of people entering the community.
	Response to anomalies	B0102	As soon as a Code Red person is found, we will report it and then take appropriate quarantine measures against them.
protective measure	lack of preparation	A0107	The last time I faced an epidemic was SARS in 2003, and I didn't think there would be another epidemic, so I didn't make any preparations for it.
	stores of material	A0406	One of the better things that our community did at that time was that people would be notified in advance to stock up on some daily necessities, including the group purchase of some foodstuffs organised by our neighbourhood committee.
Changes in capacity	Capacity building	A0603	As the outbreak developed, and later became more familiar with how to handle various situations, the community did a better job of preventing and controlling the outbreak.
internal contradiction	Conflict coordination	B0307	In carrying out prevention and control work, most residents are co-operative with the community, but there are also individuals who do not co-operate with the work and may clash, but we will actively co-ordinate this.
management structure	Internal division of labour	A0103	Our neighbourhood committee was fully staffed at the time, with each person responsible for a piece of content. I was mainly responsible for docking with the top, coordinating supplies, and going to help with any emergencies.
	dynamic allocation	B0403	I am a volunteer with no set job description and often go wherever I am needed.
	Party Group Structure	E3302	The newly formed temporary party branch of the working party members is a professional and youthful team of party members, which happens to be complementary to the retired old comrades of the community party branch, leading by party building and taking advantage of their respective strengths.
.....

Table 3. Main axis codes and main and sub categories refinement

main category	subcategory	Connotation
Multidimensional pressures on communities caused by the epidemic	Order maintenance pressure	It means that the new crown epidemic has disrupted the order of production and life of community residents in all aspects of their daily life, and the community needs to take measures to maintain the stability of the community order. For example, community neighbourhood committees have been regulating living materials for residents and guiding them to observe the rules of epidemic prevention.
	Pressure of responsibility for epidemic prevention	Community management organisation, community residents and other subjects have relevant responsibilities for preventing the spread of the epidemic. For example, community neighbourhood committees control the entry and exit of people in the community, and residents do not go out or gather unless necessary.
	Multidimensional cognitive stress	The ambiguity about the characteristics of the virus, the body's resistance to the virus, and the expected impact of the new coronavirus during the initial outbreak phase exerted cognitive pressure on multiple actors, including community leaders, community workers, and community residents.
	Physical and mental health stress	The multifaceted effects of the constraints imposed on the population by the rules of epidemiological defence, the impact on the way of living, working and interacting with the population, and the attack on the human body by the virus itself can cause stress on a psychological or physical level.
	Pressure on resources of all types	As a result of the epidemic's impact on the production system and the disruption of the living system, there will be an oversupply of essential living materials for the population, materials needed for epidemic prevention, and human resources.
Adaptation of the structure of the governing body	Linking interests and building consensus	The community is made up of multiple actors such as government organisation, residents, non-profit organisation and market players who have a common interest in the fight against the epidemic.
	Authoritative Leadership, Diverse Networks	Based on the people's trust in and obedience to the Party and the authority of the regime, under the leadership of the Party and government organisation, the pluralistic main bodies have established a collaborative and cooperative governance network, so that the resilience of the pluralistic network can withstand the impact of the epidemic.
	Digital intelligence empowers efficiency	In the practice of fighting epidemics, full use is made of the various technologies of the digital age (big data, WeChat groups, various types of small programs, etc.) to achieve systematic integration and processing of information, services and other elements, to achieve organisational platforms, and to enhance the efficiency of epidemic prevention work.
	Learning together and proactive adaptation	Through joint learning, each subject within the community learns advanced concepts and techniques, improves individual cognitive and behavioural abilities, and then enhances the community's overall capacity for cooperative and resilient governance.
Balance in whole process governance	Prevention and preparedness phase	The prevention and preparedness phase is the stage at which risks have not yet been transformed into crises. Prevention refers to the timely identification of disaster-causing factors or risks, the elimination or weakening of disaster-causing factors, and the reduction of the probability of a risk turning into a crisis. Preparation is to address the limited cognitive capacity of human beings and to make basic preparations (such as the stockpiling of basic survival resources and the construction of an emergency command system) in order to cope with an unknown crisis.
	Response and defence phase	The response and defence phase is the emergency response period within a short period of time after the outbreak of a crisis, in which the impact potential of the crisis is in an upward phase. Decision makers should make relevant judgements and decisions within a short period of time to curb the deterioration and spread of the crisis. At the same time, the front-line groups facing the crisis should take measures as far as possible to counteract the crisis and reduce losses.
	Adaptation and learning phase	The adaptation and learning stage is the period after the outbreak of the crisis, when the impact of the crisis is gradually absorbed as the residents' learning and adaptive capacity improves, and the impact of the crisis on the normal order of life of the community residents tends to be infinitely small. All groups in the community should reflect on, summarise and learn from the experience and lessons learned during the crisis.
Community resilience capacity	Capacity to govern at the source	Source management capacity refers to the ability of a community to reduce the probability of a crisis occurring or the damage caused by a crisis to the community by identifying and dealing with risks and disaster-causing factors; and by making preparations such as reserving relevant resources, formulating contingency plans and learning about emergency management.
	Social capital capacity	Social capital capacity refers to the ability of a community to cultivate social relations among its members, enhance residents' trust in the community, and raise community members' sense of identity and belonging to the community through the organisation of collective community cultural activities, the development of community behavioural norms, and the promotion and education of community values.
	Capacity for diversified cooperation	The capacity for multifaceted cooperation refers to the ability of a community to mobilise and coordinate different actors through a range of mechanisms to adopt a coherent framework for action based on common interests, shared beliefs and other internal drivers, and to provide strengths and support for community risk and crisis management.
	Learning Adaptability	Learning adaptive capacity is the ability of multiple actors within a community to improve their own perceptions of the environment, their behavioural abilities and their ability to cooperate with other actors through joint learning, which in turn improves the ability of the community as a whole to deal with complex situations, and thus improves the adaptive capacity of the individual community and the community as a whole.

3.3.4. Theoretical saturation test

After the grounded coding process above, in order to ensure the credibility of the study, the 12 primary sources that were initially randomly selected for retention to be used as a

theoretical saturation test were repeated in this paper in accordance with the same methodology and criteria. The above three-tier coding process did not reveal new concepts and categories, and the logical relationship between the concepts and the categories remained unchanged.

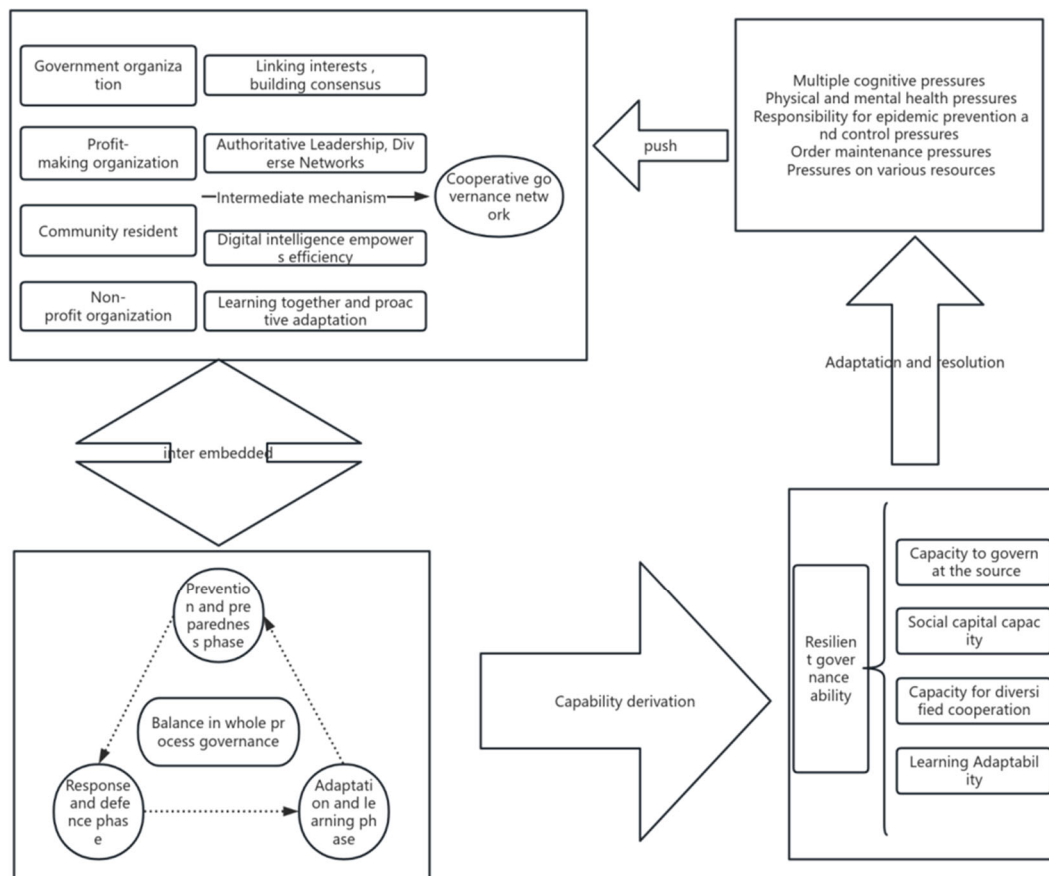


Figure 1. Mechanisms inherent in community resilience governance

4. Interpretation of Community Resilience Governance in The Context of "Pressure-structure-process-capacity" Intersections

Based on the analysis of grounded theory, this paper develops a theoretical framework for community resilience governance. It describes community resilience governance as the process of generating resilient governance capacity through the inter-embedding of community organisational governance structure adaptation and whole-cycle governance in the context of multi-dimensional pressures exerted on the community community by the New Crown Epidemic Crisis. Based on this theoretical framework, this paper will explain the internal mechanism of community resilience governance in the context of the selected case from four dimensions: external pressure generating community governance system change, community governance structure adaptation, the construction of a full-cycle governance chain, and the intrinsic mechanism of resilience governance capacity derivation through the interplaying of the governance structure and the governance process.

4.1. The pressure dimension: environmental pressures catalysing adaptive change in community governance systems

Communities, as an organic collection of human beings, naturally respond with certain behaviours when faced with environmental stimuli. The ubiquity of risk and the limitations of existing governance systems and capacities lead to frequent crises, the compounding effects of which put pressure on communities at many levels. When the

governance system is under pressure from the crisis and driven by the need to be effective, meaning that the existing governance structure cannot meet the new governance needs, the community governance system will begin to produce certain adaptive changes. In the case of this paper, the onslaught of the Xinguan epidemic placed the community in an environment where all kinds of pressures were present. Firstly, order pressure: while the impact of the epidemic seriously interfered with the normal production and living order of the community, the community governance system needed to take a series of measures to maintain the stability of the community order. Second, psychological pressure: in order to combat the epidemic, people need to comply with a series of regulations related to epidemic prevention, such as home isolation, no gathering, no door-to-door, etc. These restrictions on the activities of the residents of the space, affecting the residents to meet the needs of normal life interactions, which will bring about psychological pressure on the people. Third, the pressure of epidemic prevention responsibility: the introduction of epidemic prevention policy requires community management system for the implementation of epidemic prevention policy and community residents to comply with it, so no matter what the status of the community, they need to prevent the spread of the epidemic to assume the corresponding responsibility. Fourth, pressure on resources: the impact of the epidemic on the production system and a series of anti-epidemic measures such as building closure and quarantine may lead to pressure on resources such as a lack of food and medicine for residents, a lack of human resources for the community management system, and a lack of protective resources for community workers. Finally, physical health stress: the virulence and spread of the new coronavirus is a serious threat

to the lives and health of the community and puts a strain on the health of the population. In a sense, it is the discomfort caused by these pressures that has led different groups within the community to seek ways to cope with them, and adaptive change in the community's governance system has begun to take place when groups begin to improve their own adaptive capacity and that of the community as a whole through co-operative governance and shared learning.

4.2. Structural dimension: adaptation and optimisation of governance structures

Governance structures can be understood as the elements that make up a governance system and the relationships between them. And the community governance structure is mainly expressed as the various subjects constituting the community governance system, the relationship between the subjects, and the way the subjects interact with each other, which is usually expressed as a series of formal systems and informal arrangements. Crisis not only causes direct material level losses to human society, but also shakes the underlying order that maintains the functioning of society [32]. When a community is subjected to an uncertain disturbance or suffers a crisis, the greatest threat is that the crisis may lead to disruptions in the order of various domains within the community, including the failure of the community governance system. If the community governance system cannot withstand the disturbance and disruption of the crisis, let alone the deployment of people, organisation, and resources to other domains to restore the overall operational order of the community. Therefore, good governance of the community system presupposes governance of the community governance system, i.e., "meta-governance" of the community. For a community governance system to survive a crisis, the adaptability of the governance structure and the effectiveness of good crisis governance are necessary conditions, and the effectiveness of governance depends to a certain extent on the appropriateness of the arrangement of the governance structure. In fact, community organisation do experience some adaptive changes in their governance structures in crisis situations. This is manifested in the following ways:

4.2.1. Construction of a multifaceted and coordinated governance network under the leadership of authority, combining appropriate decentralisation with comprehensive coordination

In the traditional emergency response model based on the Weberian concept of rationality and standard rules, the community tends to rely on the emergency management agenda of the authority, which makes it difficult to adapt to the highly complex qualities of modern risks [33]. It has been shown that the multifaceted collaborative network structure is more adaptive and better suited to handle complex tasks than the traditional compartmentalised sectional organisational structure [34]. While the hierarchical system in the normal period focuses on division of labour and efficiency, the extraordinary period also focuses on efficiency, but the latter places more emphasis on the concentration of goals and strengths in crisis response under multiple synergies. For the community, the construction of multiple synergistic governance network includes two levels: first, the construction of multiple synergistic network within the community, in which other internal community subjects under the leadership of party and government authority participate in the whole process of community governance. The

community party, government, society, city and people are involved in consultation, decision-making and implementation through consultation, division of labour and cooperation, which realizes the integration of community vital forces, sharing of governance responsibilities and results, and effectively enhances the community's resilient governance capacity. Secondly, the construction of the community's external multi-dimensional synergistic network, the community, under the leadership of higher-level organisation, participates in the construction of a synergistic governance network with peer organisation and with the street office, which contributes to the exchange of information between communities, mutual help and learning, and the realisation of synergistic effects of common governance in the streets. In the prevention and control of the epidemic in Shanghai, the two community committees (the Party Committee and the neighbourhood committee) have actively guided the multi-interested subjects within the community to participate in community co-governance through negotiation, cooperation and other means to establish a multi-dimensional synergistic co-governance network. While the Party and government organisation played a coordinating and stabilising role, they also gave full play to the mobility of multiple subjects within the community, enhancing the community's agility in crisis response.

4.2.2. Consensus Building and Conceptual Leadership on the Basis of Community Common Interests

In times of crisis, through the construction of meaning (explaining the crisis scenario and responding to the information needs of the residents), the community can alleviate the cognitive pressure brought by the epidemic crisis to the community, and at the same time, establish a consensus among the community members that they have to unite their efforts to cope with the crisis, and then provide a systematic and consistent framework of action for the people in the community in the midst of the crisis. In addition, consensus building in times of crisis also relies on the social capital cultivated in normal times, which should be nurtured through community outreach, community interaction, and participation in public affairs, so as to enhance community members' sense of identity and belonging to the community. The combination of the normal and the extraordinary will achieve community members' trust in and compliance with the community governance system in times of crisis, effectively alleviate the cognitive pressure on community members, and at the same time enhance the community's ability to construct meaning and act collectively.

4.2.3. Fully utilising e-information technology in the digital age to empower community organisational restructuring with digital intelligence technology

In times of crisis, the traditional system of compartmentalised division of labour is difficult to cope with the demand for handling complex tasks, and there are problems of mismatch between the supply and demand of public services, such as mismatch between integrated demand and decentralised service sites, mismatch between immediate demand and procedural office work, mismatch between slow information transmission and high timeliness requirements for information collection, and insufficient human resources. And the use of information technology such as websites, big data, small programmes, and micro letter groups to promote the transformation of community platforms through information integration and service integration [35] can greatly enhance the management level and policy

implementation capacity of the community.

4.2.4. Promoting the simultaneous enhancement of the adaptive capacity of individual communities and the adaptive capacity of the community as a whole

Due to the limited nature of knowledge, capacity and practical experience, learning or drawing on one's own previous or other subjects' experiences of action is often the main means by which organisation and individuals respond to crises [36]. Community organisation also respond to the impact of a crisis by learning together. Firstly, the pressure brought by the crisis will push the subjects in the community to understand and learn the relevant knowledge of crisis response, so as to improve the ability to adapt to the impact of the crisis. Secondly, the construction of multifaceted cooperation networks and technology-enabled organisational platforms in community structural adjustment provide conditions for community members to learn together and for communities to learn together [37].

4.3. Process dimension: construction of the whole process governance chain

In China's Emergency Response Law of the People's Republic of China, the response to emergencies is also divided into four stages: prevention and preparation, monitoring and early warning, rescue and disposal, and aftercare and recovery. There are also many scholars who put forward other stage division standards, such as Xue Lan et al.'s two-stage theory [38] and Tong Xing et al.'s three-stage division [39]. Although the criteria of stage division are different, the core proposition is to extend the scope of crisis management from the emergency period forward and backward, to cover all the time phases related to crisis management as much as possible, and to put forward the management strategy of each stage to reduce the probability of crisis and enhance the effectiveness of crisis management. For communities, it is essential to build a whole-process governance chain for each stage of disaster development, and the focus of governance strategies at each stage should also be clarified.

4.3.1. In the preventive and preparatory phase

At this point, risks are at a stage where they have not yet been transformed into crises and are still in the latent period. At this stage, the focus of governance is on the identification and elimination of risks, or disaster-causing factors, to reduce the probability of risks being transformed into crises, i.e., to pay attention to the governance of the source of crises. However, due to the limited ability of human perception and the complexity of the risk evolution mechanism, it is almost impossible to completely eliminate the risk and completely block the risk evolution process. At this stage, the advantage of the community's proximity to the grass-grounds level should be brought into play, as the community has a wide range of information sources and a strong ability to perceive risks. Therefore, relevant risk prevention education should be carried out in the community, and a risk detection and early warning system should be set up to sense and report risk information in a timely manner, so that risks can be nipped in the bud as far as possible. In addition, based on the tension between the objective complexity of risk and the limitations of human cognition, the community should build up a basic reserve of resources (community human resources, family emergency supplies, social capital cultivation, etc.) as well as a more reliable system of governance in the normal period, so

as to avoid excessive passivity during the emergency period.

4.3.2. In the response and defence phase

Crisis is "a serious threat to the fundamental values and normative framework of a social system, requiring rapid decision-making by managers in a short period of time and in an environment of high uncertainty [40]." On the one hand, when an emergency occurs, the impact potential of the crisis is on the rise, and whether or not human beings deal with the emergency quickly and effectively has a significant impact on the extent and scope of the subsequent crisis. Therefore, the pre-processing of the crisis focuses on the timeliness of the response. For communities, they have the temporal and spatial advantages of being the first to notice and the first to face a crisis. Therefore, it is necessary to include the community in the rapid crisis assessment system, and collect relevant crisis information rapidly and accurately through the community; at the same time, establish the corresponding level of response mechanism in the community, and improve the pre-crisis handling capacity of the community. On the other hand, when the impact potential of a crisis reaches its peak, its destructive power also reaches its peak. At this stage, the focus of crisis response should be on crisis resistance, and grassroots communities are the front line of crisis resistance. The community's reserve of resources, its social capital, its mobilisation capacity and its co-ordination capacity determine the community's ability to resist the crisis at this stage.

4.3.3. Joint learning and active adaptation phase

The period in which the impact of the crisis on human society gradually diminishes or in which human beings gradually adapt to the crisis and its effects. During this phase, the stress and discomfort caused by the impact of the crisis will gradually disappear as the response measures are weakened and human beings become more familiar, learn and adapt. At this stage, the focus is on strengthening individual and overall adaptation to the crisis and its impacts through recovery and reconstruction and joint learning, while at the same time reviewing, reflecting on and learning from the entire development process of the crisis. Communities, as grass-grounds autonomous organisation, should help community residents adapt to life in the post-crisis period through collective activities, livelihood assistance and psychological counselling, and should reflect on the problems that existed in the community during the development of the crisis, accumulate lessons learned, and enhance the community's capacity for risk and crisis management.

4.4. The capacity dimension: generation of community resilience governance capacity

The goal of community resilience governance is to improve the community's capacity to respond to community risks and crises through the means of governance. Community resilience governance capacity can then be understood as the capacity of the community governance system to govern community risks and crises. The adaptation of governance structure is an important driving force for the improvement of community resilience governance capacity, but the clarity of the evolutionary logic of the governance process and its corresponding governance strategy is also a strong support for the improvement of community resilience governance capacity. The community resilience governance capacity is also enhanced under the joint action of "governance structure adjustment" and "whole process governance chain

construction". This is reflected in the following aspects:

4.4.1. Source governance capacity

The capacity to govern at the source is based on the process dimension, which emphasises the community's ability to manage risks, stockpile materials and establish reliable community governance systems during the normalisation period. The concept of "treating the disease before it gets worse" has not been given much attention in the context of existing community crisis governance. The capacity of communities to govern at the source can be effectively enhanced through joint learning among community members and communities in the process of adapting the governance structure, as well as by emphasising the concept of whole-process governance.

4.4.2. Social capital capacity

Social capital capacity emphasises the ability of a community to foster social relations among its members, enhance residents' trust in the community and raise community members' sense of identity and belonging to the community through a range of means. The enhancement of social capital cultivation capacity through the "structural adjustment-whole process governance" embeddedness mainly includes two aspects, social capital cultivation in the normalised governance period and social capital cultivation in the non-normalised period. Whole-process governance emphasises the reserve of resources in the normal period, and the community can cultivate social relations, community trust and residents' sense of identity through community collective cultural activities, the formulation of community behavioural norms, and the promotion and education of community values. Adaptation of community governance structures can also play a role in cultivating social capital during the non-permanent period, as the community's experience of constructing a sense of meaning in a crisis, coordinated and orderly governance arrangements, and co-operative and shared governance will enhance community members' trust in the community, their sense of identity, and their sense of belonging to the community.

4.4.3. Capacity for diversified cooperation

Whether in the adjustment of community governance structure or the construction of the whole process of governance chain, the enhancement of the capacity of multi-dimensional cooperation is a natural result. Adaptation of the governance structure effectively improves the capacity for multi-dimensional co-operation through consensus building, the construction of the governance network, the empowerment of digital intelligence, and the common learning of members and other internal mechanisms. In the whole process of governance chain, the emphasis on the construction of community detection and warning system, community governance resource reserve, co-operation resistance, post-disaster learning and other aspects can also enhance the capacity of multi-dimensional co-operation. It can be seen that there is an overlap between governance structure adjustment and the construction of the whole-process governance chain in terms of the intrinsic driving mechanism for the enhancement of multi-dimensional co-operation capacity. However, this is in line with the inherent logic that the two are embedded in each other to promote the enhancement of community resilience capacity.

4.4.4. Learning Adaptability

In the whole practice of community resilience governance, community adaptation is both the goal and the result, and both

the adaptation of the community governance structure and the construction of the whole-process governance chain have the basic goal of enhancing the community's ability to resist and adapt to risks, emergencies and crisis shocks. The adaptation of the governance structure and the whole process of governance are the community's efforts to enhance its adaptive capacity. However, the problem is that the term adaptation is too passive and hides the efforts made by the community as a dynamic subject to cope with the risk and crisis shocks in the whole process. As a matter of fact, whether it is the adaptation of governance structure or the construction of the whole process of governance chain, it is necessary for people to face all kinds of pressures brought by the early stage of the crisis, and to be familiar with, understand, and learn from the unknown things, new environments, and new modes, and to adapt in the process of learning is precisely the core resilience capacity that the human community has formed and demonstrated in all kinds of crisis management. Based on the tension between the limitations of human cognition and the complexity of risky crises, the coexistence of human beings with risks is a practical result, and the ability to learn and adapt is the bottom line for human beings to coexist with risky crises.

5. Conclusion and Discussion

5.1. Conclusions of the study

The impacts of risks and crises bring multidimensional pressures on communities in terms of order, resources, and health, and the enhancement of resilience through efforts at the governance level has become an important way forward in maintaining community and urban security. Based on the deconstruction and analysis of community epidemic prevention and control practices in S city, it can be found that in the process of coping with crises in the community, the adaptation of governance structure on the spatial scale and the whole-process governance arrangement on the temporal scale are the two key variables affecting the community's ability to cope with crises. For community resilience governance practice, the spatial and temporal variables are intertwined and constructed with each other, embedded in the community risk and crisis governance field, and synergistically promote the enhancement of community resilience governance capacity. At the same time, the enhancement of community resilience governance capacity can also reverse the process of adjusting and improving community governance structures and processes in response to changes in the environment.

5.1.1. Adaptation of the community governance structure to lay the micro-action foundation for the construction of a whole-process governance chain

Adaptation of the governance structure emphasises that the relationship between the constituent elements of the community governance system should be adjusted accordingly to changes in the environment, so as to bring into play the synergistic efficacy of the various elements of governance in the community. The construction of a whole-process governance chain inevitably relies on the capacity of the community governance system for policy learning, resource integration and adaptive implementation. The adaptation of the community governance structure can give the community governance system better learning, organisational and implementation capabilities, providing a solid action foundation for the construction of the whole-process governance chain in the community, and preventing

the construction of the whole-process governance chain from falling into the situation of "cooking without rice".

5.1.2. The construction of a whole-process governance chain can provide a macro-direction for the adaptation of community governance structures.

The construction of a whole-process governance chain emphasises the need to arrange the focus of governance according to the life cycle of the crisis, and the need to integrate the early sources of risks into the governance of the crisis. The combination of management, medium-term emergency response, and post-adaptation learning achieves a balanced whole process of emergency management [41] [42]. The adjustment of community governance structure is to provide the community with the ability of collective action, while the arrangement of whole process governance is to provide scientific guidance for community action. The whole-process governance is a basic law summarised based on the existing crisis management practice, and the construction of the whole-process governance chain can point out the feasible path and clarify the focus of governance for community risk and crisis management. The implementation and realisation of the governance path will force the original irrational governance structure to make adaptive adjustments and show the direction for the adjustment of the community governance structure. In addition, without a macroscopic grasp of the entire crisis governance process, community governance actions may be in a state of confusion, losing sight of the whole.

5.1.3. Structure-process embeddedness drives the ongoing derivation of community resilience governance capacity

Whole-process governance is dependent on good governance structures, which cannot function in isolation from the process of practice, but also requires a macro grasp of the entire governance process. Relying solely on the arrangement of governance structure and governance process will lead to problems such as governance bias and implementation bias. The generation and enhancement of community resilience governance capacity requires joint efforts in space and time, micro and macro, that is, both community governance structure adjustment and the whole process of governance arrangement. At the same time, organisation acquire capacity enhancement and stress relief through innovation and change, which to a certain extent generates path dependency. In subsequent new crisis environments, the trust in the path of innovation and change and the organisation's continuously strengthened learning ability in the process of change will successively promote the continuous adjustment and improvement of the community governance structure adjustment and governance process arrangement, which in turn will achieve the continuous derivation of the community resilience governance capacity.

5.2. Future prospects

This paper focuses on community resilience governance, establishes a more complete theoretical framework of community resilience governance of "pressure-structure-process-capability" through grounded analysis, and explores in detail the intrinsic mechanism of community resilience governance: community resilience governance capacity is enhanced through the interplaying of "adjustment of community governance structure" and "construction of whole process governance chain" in the context of "multidimensional pressure brought by crisis". It also explores in

detail the inner mechanism of community resilience governance: under the background of "multidimensional pressure brought about by crisis", the community's "community resilience governance capacity" can be improved through the interplaying of "community governance structure adjustment" and "construction of whole-process governance chain". It is made clear that the enhancement of community resilience governance capacity does not depend solely on the arrangement of governance structure and governance process, but is continuously derived from the mutual construction and co-promotion of governance structure and governance process arrangement.

At the same time, the paper identifies several paths for communities to adapt to crises through governance structures: building a multifaceted and collaborative governance network; building consensus based on common community interests; empowering community governance with digital intelligence; and learning together to achieve adaptive capacity enhancement. The importance of the community's construction of a whole-process governance chain for the crisis is highlighted, and the community's governance focus and strategies in different life cycles of the crisis are clarified. Communities can achieve community resilience governance capacity enhancement through the combination of governance structure adjustment and whole-process governance, i.e., micro-adjustment and macro-grasp.

Of course, the paper has many shortcomings. Firstly, this paper attempts to explore the internal mechanism of community resilience governance from the community new crown epidemic prevention and control in S city through grounded analysis. However, the community new crown epidemic prevention and control in S city has a long time span and a wide range of influence, the data and information collected in this paper have temporal and spatial limitations, and the comprehensiveness of the information is yet to be proved. Secondly, this paper only extracts a macroscopic theoretical framework from the research data, and some details in the framework are not described clearly enough, and need to be improved on the basis of theoretical and empirical data. Finally, there are fewer studies on policy orientation to promote the development of community resilience governance practices, which need to be further explored.

References

- [1] Ulrich Beck, *The Risk Society*, translated by He Bowen, Nanjing: Yilin Publishing House, 2004.
- [2] Fan Ruguo. Governance of the "Global Risk Society": Complexity Paradigm and China's Participation[J]. *China Social Science*,2017(02):65-83+206.
- [3] He Yanling,Zhou Han. Urban governance risks under the global system: rethinking based on urbanity[J]. *Governance Studies*, 2020,36(04):5-19+2.
- [4] Zhang Haibo. On "emergency failure"[J]. *Administrative Forum*, 2017,24(03):45-52.
- [5] Zhou Han,He Yanling. Governance deviations in nested structures:The crisis transformation of urban risk in China[J]. *Nanjing Social Science*,2021(02):83-92.
- [6] Lan Yuxin. Community Resilience: A New Proposition for the Modernisation of Grassroots Governance System and Capacity[J]. *China Nonprofit Review*,2020,25(01).
- [7] Shao Yiwen,Xu Jiang. Urban resilience:A conceptual analysis based on international literature review[J]. *International Urban Planning*,2015,30(02):48-54.

- [8] Liao K H. A Theory on Urban Resilience to Floods-A Basis for Alternative Planning Practices [J]. *Ecology and Society*, 2012.17 (4) :48.
- [9] Walker B,Holling C S, Carpenter S R, et al. Resilience, Adaptability and Transformability in Social-Ecological Systems [J]. 2004,9 (2) :5.
- [10] Ma Ben,Liu Jie. How the concept of resilience can be integrated into urban governance--Insights based on the creation of a model city for safe development in D city[J]. *Administrative Forum*,2020,27(05):95-101.
- [11] Godschalk D R. Urban Hazard Mitigation :Creating Resilient Cities.*Nature Hazards Review*,2003,4(3):136-143
- [12] Alberti M, Marzluff J, Shulenberger E, et al. Integrating Humans into Ecosystems:Opportunities and Challenges for Urban Ecology. *Bio Science*,2003, 53 (4) :1169-1179
- [13] Tang Huangfeng,Wang Rui. Resilient city construction:The preferred path to modernise urban public safety governance in China[J]. *Inner Mongolia Social Science*(Chinese version), 2019, 40(01):46-54.
- [14] Rong Zhi,Chen Zhiyu. Structural Equilibrium and Modernisation of National Emergency Management System [J]. *Journal of S City College of Administration*,2023,24(05):4-17.
- [15] Zhou Limin. Resilient Cities:Risk Governance and Indicator Construction--An International Case [J]. *Journal of Beijing Administrative College*, 2016(02):13-20.
- [16] Desouza K C,Flanery T H.Designing,Planning,and Managing Resilient Cities:A Conceptual Framework[J]. *Cities*, 2013. 35(4): 89-99.
- [17] Pendall R,Foster K A,Cowell M.Resilience and Regions:Building Understanding of the Metaphor[J]. *Cambridge Journal of Regions, Economy and Cambridge Journal of Regions, Economy and Society*.2010.3(1):71-84.
- [18] Zhu Zhengwei,Liu Yingying. Resilient Governance:A New Path for Risk and Emergency Management[J]. *Administrative Forum*,2020,27(05):81-87.
- [19] Cai Qiurong,Ye Jihong. How is resilient governance of urban public safety possible - the perspective of adaptive cycle modelling[J]. *Tianfu Xinlian*,2021,No.220(04):118-126.
- [20] Chen Tao,Luo Qiangqiang. Resilient Governance:Response and Adaptation of Emergency Management in Urban Communities-A Case Study Based on the Prevention and Control of New Crown Pneumonia Epidemic in Community J of W City [J]. *Seeking Truth*,2021(06):83-95+110.
- [21] Zhong Weijun. Resilient Government Crisis Governance: Promoting Meaning Construction in Uncertainty[J]. *Journal of Guangxi Normal University (Philosophy and Social Science Edition)*, 2023,59(02):96-106.
- [22] Zhang Qin,Fang Minyi. Resilient Governance: Challenges and Path Optimisation for Modernising Risk Governance in Chinese-style Urban Communities[J]. *China Emergency Management*, 2023 (07):52-57.
- [23] Peng Swell,Guo Zuyuan,Peng Zhongren. Theoretical and practical progress of community resilience in foreign countries [J]. *International Urban Planning*,2017 (4)
- [24] Dialante R, Thomalla F. Community Resilience to Natural Hazards and Climate Change Impacts:A Review of Definitions and Operational Frameworks[J]. *Asian Journal of environment and disaster Management*, 2011, 3 (3) :339-355.
- [25] Yan Deru. Building a resilient community emergency governance system[J]. *Administrative Forum*,2020,27(03):89-96.
- [26] Wu Xiaolin, Xie Yiyun. Research on resilient communities based on urban public safety [J]. *Tianjin Social Science*, 2018 (03):87-92.
- [27] Zhang W, Chen QW, Zhu YJ, Ma H. A modelling study of factors influencing community resilience in the context of 2022. major public health events. *Journal of Public Administration*,19 (03); 96-109+172.
- [28] Qiangqiang Luo,Tao Chen,Chenghan Ming (2022). Community resilience in megacities under the perspective of risk: structure, obstruction and way forward - a multi-case analysis based on the community governance of the new Crown pneumonia epidemic in W city[J]. 2002(05):86-94.
- [29] Tong Xing. Process-structure analysis in emergency management case study[J]. *Xuehai*,2017,(03).
- [30] Jia Zhemin. The application of groundedness theory in public management research:method and practice [J]. *China Administration*, 2015 (03):90-95.
- [31] Liu B.S.,Zhang F.D.,Xue B. What Makes Urban Community Renewal from the Inside Out Possible? --The Case of X Community Renewal Governance[J]. *Journal of Public Administration*, 2022, 19(01):121-133+174.
- [32] Liu Yihong,Gao Xiaoping. The Third Form of Governance in the Risk Society--The Way of Existence of "Transformational State" and the Government's Response[J]. *Political Science Research*,2021(04):122-133+159.
- [33] Zhao Shiyu,Dong Jingwei. Resolving structural tensions in resilient urban community governance[N]. *China Social Science Journal*, 2023-06-28(005).
- [34] Wiliam Waugh, Gregory treib, Collaboration and Leadership for Effective Emergency Management, *Public Administration Review*, 2006, Vol. 66. Special Issue, pp.131-140.
- [35] Huang Zhanglong. Transformation of Grassgrounds Government Platformisation and Reproduction of Complexity Governance Capabilities - A Multiple Case Study Based on groundedness Theory[J]. *Social Policy Research*, 2022 (01): 119-136.
- [36] Wang Qinghua,Meng Lingguang. Value, management and action: understanding the threefold orientation of crisis learning[J]. *Administrative Forum*,2023,30(05):114-121.
- [37] Donald Moynihan, *Leaning under Uncertainty: Networks in Crisis Management*, *Public Administration Review*,2008, 68(02):350-365.
- [38] Xue Lan,Zhou Ling. Risk management: a powerful guarantee for "moving the gate forward again"[J]. *China Emergency Management*,2007(11):12-15.
- [39] Tong Xing,Zhang Haibo(2011). An analytical framework for disaster management based on China's problems[J]. *China Social Science*,2001(01): 132-146.
- [40] U. Rosenthal, Boin ALouise K. *Managing Crises:Threats, Dilemmas, Opportunities* New York:Charles C Thomas Publisher, 2001: 5.
- [41] Tong Xing,Tao Peng. On the Innovation of China's Emergency Management Mechanism-Based on the Concept of Combining Source Governance, Dynamic Management and Emergency Disposal[J]. *Journal of Jianghai*,2013,(02):111-117.
- [42] Zhang Haibo. The whole-process equilibrium of emergency management: a new topic[J]. *China Administration*, 2020 (03): 123-130.