Current Situation and Future Trend of Emergency Management Research in China Based on Citespace

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Abstract: Emergency management is the cornerstone of maintaining and realizing national security and public security. It is of great practical and theoretical significance to analyze and forecast the research of emergency management. This article takes 1753 pieces of emergency management literature included in the China Social Sciences Citation Index as the research object, uses CiteSpace visualization software to conduct keyword co-occurrence and cluster analysis on emergency management, sorts out the research hotspots, research emphases, evolutionary paths, and future trends of literature in this field, and constructs the knowledge map of emergency management research. The study found that the object, system, methods, and purpose of emergency management are the 4 major areas of research. Emergency occurrences, emergency response capacity, and emergency information platforms make up the three main topics of emergency management study. Initial investigation, development and strengthening, and in-depth study are the three significant stages of emergency management evolution. A resilient emergency management system under national governance, achieving the transformation of emergency management to normalized management, and promoting the precision and refinement of emergency management in the context of big data is the future research directions of emergency management in China which are highlighted as a result of these studies.

1. Introduction

Emergency management is a critical component of maintaining the overall security of my family, a crucial aspect of creating a socialist, peaceful society, and a crucial undertaking to protect the core interests of the populace and ensure their satisfaction. Since the 1970s, when it was primarily focused on the reality based on outdated technology and the prevalence of accidents, a significant study has been conducted on emergency management by both domestic and international researchers in China. A new era of emergency management research has begun in the 21st century in China, and it has gone through the stages of early exploration, development and strengthening, and deeper research. At the same time, the construction of emergency management disciplines in China has been continuously promoted, which has already become an important cornerstone for the modernization of China's emergency management and a key to building the national emergency management system in the new era.

In recent years, the number of core journals in the field of emergency management indexed in the CSSCI database has exceeded 2500, and the research literature in the field of emergency management in China has shown an increase in quantity, expansion in width, and deep development, but there are still problems such as one-sided research and lack of overall, and it is difficult to grasp and evaluate the research process as a whole. Combined with the above, this paper uses CiteSpace literature analysis software to analyze 1753 emergency management-related articles from the Chinese Social Science Citation Index (CSSCI) database since 2002 as samples from the number of articles, discipline analysis, author co-occurrences, research hotspots, etc., and conducts knowledge mapping analysis to sort out the development history of emergency management research in China in recent years, as well as research The study was conducted to identify the development history, research focus, research hotspots and research frontiers of emergency management research in China in recent years, and to draw relevant conclusions.

2. Research Methodology and Data Sources

2.1. Research Methodology

This paper uses CiteSpace software with version V.5.8.R4 (64-bit) to analyze 1753 valid literature data after screening and visualize the current research literature on the topic of "emergency management" in China. CiteSpace software can help researchers to map the scientific knowledge of the development of the research field, transform the development process and structural relationship of the field into a visual and concrete image, and judge the research focus, hot spots, and research development trend in the field.

2.2. Data Sources

This article's data were obtained from the Chinese Social Sciences Citation Index (CSSCI) database. Since emergency management is a mature concept and has become a proper noun in established research, a literature search was conducted using "emergency management" as the topic, with no restriction on the year of search and the search date being January 23, 2022. A total of 2721 documents were obtained through the search, and after manually eliminating 968 non-academic documents with duplicates, no authors, and no keywords, 1753 valid documents were obtained, and the time distribution of the documents spanned from 2002 to 2022.

3. Bibliometric Analysis of Emergency Management Research

3.1. Temporal Distribution of the Literature.

According to the trend of a linear relationship in the distribution chart of emergency management literature (see Figure 1), it can be seen that the number of research literature on emergency management in China as a whole has been increasing since 2002, and emergency management has been paid more and more attention by scholars. Among them, 2003, 2008, and 2020 are important time points for emergency management research, which are closely related to the major public emergencies that occurred in that year. 2003, when SARS broke out in China, comprehensive emergency management received widespread attention, but due to the lack of experience in the early stage of research, the number of publications did not increase significantly in the following years; in 2008, the "Wenchuan earthquake", "snow disaster in Southern China" and other emergencies showed problems, which provided rich nourishment for academic research; in early 2020, the new crown pneumonia epidemic ravaged China, promoting theoretical research and practical operation of
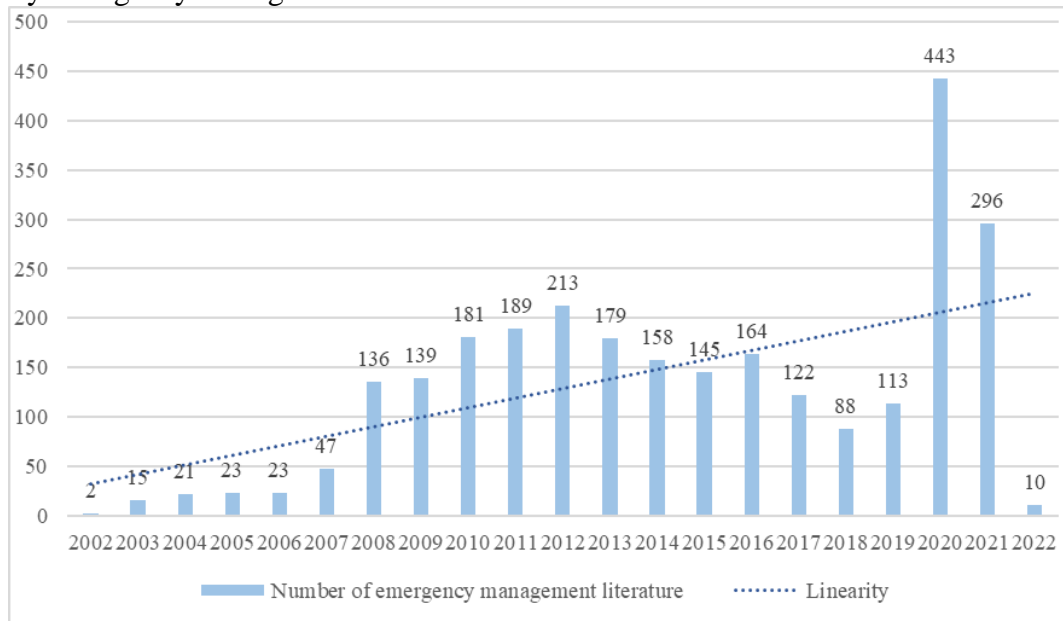
community emergency management in China.

Figure 1: Distribution of the number of domestic emergency management literature.

3.1.1. The Research Direction was Dominated by Emergency Management of Emergencies

The frequencies of emergencies, epidemic prevention, and control, and new crown pneumonia were 225, 24, and 24, respectively, and the intermediary centrality was 0.28, 0.07, and 0.03, respectively, which were in a high position, which showed that scholars attached importance to emergency response, and emergency management required good planning and preparation before the occurrence of events to ensure the reduction of all kinds of losses when emergencies occurred, which also required that in emergency management The analysis of various types of emergencies is an essential part of the research. Meanwhile, since the outbreak of the new crown epidemic at the end of 2019, major public health and safety emergencies have become social hotspots, and countermeasures for dealing with such emergencies have been increasing, providing various guidance and plans for epidemic prevention and response in real life, and the focus of emergency management research has further shifted to the field of emergencies. The hotspot research on emergency management reflects the fact that the academic field of emergency management in China has been working on real-life needs and constantly responding to the hotspot needs of society.

3.1.2. Research Focuses on Improving the Emergency Management System and Enhancing Emergency Response Capability

The frequency of emergency plans and emergency systems is 62 and 25, the centrality of intermediaries is 0.17 and 0.04, and the frequency of mechanism and centrality of intermediaries is 16 and 0.03. They all have a high occurrence rate and citation rate in emergency management research, which reflects that most of the research on emergency management focuses on improving China's emergency management system and enhancing emergency response capability. On the one hand, since the SARS outbreak event in 2003 and the spread of the epidemic around the world, scholars have become more and more aware that emergency management for emergencies should not be isolated into regionalized units, but a systematic planning arrangement in which all places echo each other and functional units communicate with each other is the best strategy to deal with such events. On the other hand, since the major proposition of "modernization of national governance system and

capacity" was put forward in November 2013, to respond to the call for national planning, the emergency management system and capacity, as an organic part of the whole national governance system and capacity, have been placed on the hot spot of research again. At the same time, the research on improving the emergency management system and enhancing emergency management capacity also fully reflects the deepening of scholars' understanding of this field, which is conducive to the improvement of the emergency management response level of China's sudden disasters.

3.1.3. Actively Use Information Technology to Build an Emergency Information Platform

Big data, emergency intelligence, and blockchain appear in 32, 28, and 21 words respectively, which indicates that scholars in the field of emergency management advocate the role of modern information technology in academic research and the use of technology to build emergency information platforms. The emergence of emerging information technologies such as Big data and Blockchain has brought many new openings and possibilities for research in the field of emergency management, and many scholars recognize that building a new emergency management information platform can effectively improve the efficiency and level of emergency management, and have begun to advocate the establishment of a comprehensive wisdom platform for emergency management, using technologies such as Big data and digital twin to collect This trend reflects the modernization of the emergency management field with the times and shows a direction for the futuristic development of the emergency management field.

3.2. Disciplinary Distribution of Literature

In terms of the distribution of research disciplines, the largest number of articles published on this topic is in administrative science and state administration, with 1229 articles, accounting for 51% of the total, which to a certain extent reflects the high attention and richness of the research topic of emergency management. The second is library intelligence and digital library, with 188 articles, accounting for 8% of the total. The research on emergency management is also widely distributed in the disciplines of environmental science, security science, and disaster prevention and control, showing the characteristics of cross-fertilization of multiple disciplines with the public domain as the core. The deepening of related research will promote the continuous improvement of the emergency management system and the modernization of national governance capacity and level.

3.3. Distribution of Literature Researchers

The following conclusions are obtained by analyzing the co-occurrence map of emergency management researchers: first, the high-productive authors in the field of emergency management research are represented by Lu Wengang, Zhang Haibo, Yu Zucheng, etc. Their achievements are numerous and frequently cited, and their contributions and influence in this research field are large; second, the research power in the field of emergency management research is mainly concentrated in major universities and research institutions, such as Nanjing University, Tsinghua University, Renmin University of China, etc. Thirdly, the authors in the field of emergency management research are relatively dispersed, including public management, international relations and public affairs, and computer science and technology, which to a certain extent contributes to the interdisciplinary cross-fertilization of emergency management research and promotes the formation of a systematic and in-depth localized discourse genealogy in emergency management research.

3.4. Distribution of Highly Cited Literature

The research topic of emergency management has received a lot of attention from scholars in

various disciplines, and its related literature has been included in the CSSCI database with many highly cited articles, such as the article titled "Classification, grading, and staging of public emergencies: the management basis of emergency response system" published by Xue Lan and Zhong Kaibin in Chinese Administration 2005. The article has been cited 738 times and downloaded 15521 times as of January 27, 2022. The article proposes that the basic principles of emergency management are "division of responsibilities, integration of departments and blocks", "hierarchical management, shifting the center of gravity", and "prevention-oriented, combined with horizontal warfare." [1] Based on the current research status, this paper has made some contributions to clarify the connotation of public emergencies and to the current practice of emergency management.

4. Analysis of the Development Pulse and Trend Based on the Knowledge Graph

4.1. Research Hotspots: Keyword Word Frequency and Mediated Centrality Analysis

A research hotspot is a scientific question or topic explored by a relatively large group of literature that is intrinsically linked more frequently at a given period [2]. In bibliometric studies, it is generally believed that keywords' word frequency and mediated centrality can reflect the research hotspots in a specific period. The keyword feature distribution table was obtained through the Network Summary Table function of CiteSpace software (see Table 1), and the results indicate that emergency management research is focused on three hotspots: emergency management as the main focus, focus on improving emergency management systems, and advocate the use of modern technology to build information platforms. Due to the intrinsic requirements of emergency management research and the realistic background of recurrent epidemics, emergency management research mostly focuses on emergency response; while the lessons learned from SARS and other incidents and the call of national policies have led scholars to improve emergency management systems around the world as an entry point to effectively improve emergency management capabilities; the rapid development of modern information technology has provided more possibilities for emergency management research, and the attempt to build an emergency management information platform has provided a new direction for the future development of emergency management disciplines.

4.2. Research Focus: Keyword Co-occurrence Clustering Analysis

By operating the CiteSpace software and adjusting its parameters, we obtained a clustering map of community emergency management keywords with 637 network nodes,904 connected lines, a density of 0.0045, a clustering module value(Q) of 0.6834, and a clustering average profile value (Silhouette) of S of 0.9277. The Q value indicates the evaluation index of the modularity of the network graph, and the closer the Q value of a graph is to 1, the better the clustering effect obtained by the network graph is. By comparing the actual parameter values and critical values of this clustering map, it can be found that the clustering effect of the emergency management keyword clustering map is more significant, the results are more reasonable, and it has a research value.

The focus of the research area can be seen by clustering the high-frequency keywords in the literature. The keyword clustering mapping of emergency management showed that the keywords "emergency management", "emergency events" and "emergency planning" appeared in the center of the clusters, showing a high centripetal nature. Through the systematic operation of CiteSpace software, 18 main clusters were obtained (see Table 2), which could be divided into 4 groups of codes through analysis and comparison.

Table 1: Keywords feature distribution table (frequency≥13)

Number	Keyword	frequency	mediated centrality
1	emergency management	784	0.97
2	crisis	225	0.28
3	contingency plan	62	0.17
4	crisis administration	55	0.10
5	public health	38	0.05
6	public security	33	0.08
7	big data	32	0.04
8	emergency intelligence	28	0.03
9	emergency system	25	0.04
10	epidemic prevention and control	24	0.07
11	COVID-19	24	0.03
12	emergency decision	22	0.04
13	infectious diseases	21	0.00
14	blockchain	21	0.02
15	public crisis	21	0.02
16	social administration	17	0.02
17	emergency logistics	17	0.01
18	emergency response	16	0.03
19	prospect theory	16	0.00
20	mechanism	16	0.03
21	government	16	0.02
22	emergency governance	15	0.00
23	emergency capability	15	0.02
24	risk management	15	0.03
25	nature disaster	14	0.01
26	the united states	14	0.01
27	public management	14	0.02
28	intelligent emergency response	14	0.03
29	emergency mechanism	13	0.02
30	emergency disposal	13	0.04

Table 2: Emergency management cluster coding table

Code	Clustering result
#A. Study on emergency management object	crisis(#1), crisis administration(#5), epidemic prevention(#8), nature disaster(#9), COVID-19(#14), emergency rescue(#15), major natural disasters(#16)
#B. Study on emergency management system	emergency management(#0), contingency plan(#3), emergency capability(#6), emergency response(#7), emergency disposal(#12), emergency information(#13)
#C. Study on emergency management tools	Blockchain(#2), information sharing(#17)
#D. Study on emergency management purpose	public security(#4), social administration(#10）, public management(#11)

4.2.1. Emergency Management Object Study (#1, #5, #8, #9, #14, #15, #16)

Emergency management is the management of the whole process of emergencies. Emergencies can be divided into four categories according to their impact types: natural disasters, accidents and disasters, public health events, and social security events, so the study of emergency management objects is also roughly divided into four parts corresponding to them. First, the study of natural disasters. Natural disaster research can be divided into two parts: single-hazard and multi-hazard research. As for single-hazard, Song Yan and other scholars have studied the long-term indirect impact of the Wenchuan earthquake on the economy of 10 worst-hit areas and given policy suggestions related to post-disaster recovery [3]; as for multi-hazard, scholars have used a complex network analysis method based on $0.5\,°\times 0.5\,°$ daily temperature and precipitation grid data in China to confirm that the 2008 southern low-temperature rain and snow freeze disaster is a typical multi-hazard superposition event [4]; second is the study of an accident study of disasters. Xiao Xingzhi and other scholars analyzed the shortcomings of China's current emergency response system for coal mine accidents and put forward corresponding suggestions for improvement [5]. Third, research on public health events. The research on public health events mainly focuses on SARS and the new crown pneumonia epidemic. Based on the case comparison of SARS, influenza A, and NCCP, scholars have studied the "changes" and "constants" of the national emergency command system[6]; fourth, the study of social security incidents. Scholars use social security incidents as a perspective to analyze the new vision of emergency rule of law under the overall national security concept [7].

4.2.2. Emergency Management System Study (#0, #3, #6, #7, #12, #13)

The construction process of an emergency management system can be roughly divided into three phases. The first stage is from 1949 to 2003, the single disaster emergency management system. China established specialized disaster prevention and mitigation departments and institutions such as the Ministry of Water Resources and the Ministry of Forestry to respond to emergencies in this phase, whose main characteristics were departmental response, decentralized management, and single response. The second stage is 2003-2018 when the emergency management system was initially established and perfected. The outbreak of SARS in 2003 exposed China's shortcomings in emergency management. Against this background, the concept of an "emergency management system" was put forward for the first time. China set out to establish and improve the "one case, three systems" emergency management system to deal with major public emergencies. The third stage is the period of building an emergency management system with Chinese characteristics from 2018 to the present. In 2018, the Ministry of Emergency Management was established according to the institutional reform plan of the State Council approved at the first meeting of the 13th National People's Congress, which became a milestone in the development of emergency management in China, and improved the "one case, three systems" under the full disaster The Ministry of Emergency Management is a milestone in the development of emergency management in China, which has improved the shortcomings of the "one case, three systems" system of all-hazard management and all-process management, and moderately reduces the management of "all-hazard" and moderately increases the management of "all-process" when the two are in conflict.

4.2.3. Emergency Management Tools Study (#2, #17)

Emergency management is a dynamic and complex system engineering, which needs to rely on multiple means to complete the full cycle. In the current era of rapid development of information technology, it is particularly important to apply blockchain, big data, and Internet+ to the early warning, response, and recovery stages of emergencies. Before the occurrence of emergencies, accurate identification and dynamic monitoring of major sources of danger using the Internet and

other means, and big data analysis of the behavior patterns of large-scale crowds under conditions of natural disasters or production safety accidents, improve emergency drills and training in a targeted manner. In the mid-event stage of emergency management work, big data analysis is used to improve emergency response efficiency. Through the information management platform, multiple subjects share information such as disaster characteristics in real time to improve the scientific and accurate response work, analyze massive data, improve command and coordination, release information, and supervise the distribution of disaster relief materials. After the occurrence of public emergencies, the speed of recovery and reconstruction work is promoted through big data analysis, and the real information on the handling of the events is displayed to the public, which strives to reduce the post-event safety hazards of emergencies while accepting public supervision, and at the same time, the public's attitude tendency and issue focus on emergency management is inferred through analysis of network public opinion, which provides accurate data sources for improving emergency management.

4.2.4. Emergency Management Purpose Study (#4, #10, #11)

Emergency management is the whole process of managing a disaster before, after, and after the outbreak of the disaster, using scientific methods to intervene and control it, so that the damage caused by it is minimized [8], to strengthen public safety, tighten the safety protection network, and thus enhance the people's sense of security, satisfaction, and happiness, stabilize social order and long-term peace, and promote the modernization of national governance capacity and level. The whole process of emergency management in China mainly covers mitigation, prevention, preparation, response, and recovery functions. All types of units at all levels need to be prepared for emergencies, and once a natural disaster or safety accident occurs, they should control the situation as soon as possible, and learn from it to improve emergency management. Four actions should be taken by emergency management departments. To begin, they should summarize the incidence and progress of public emergencies, as well as optimize the overall emergency management process. Second, they should build a mechanism for scientifically channeling public opinion and psychological stabilization, as well as encouraging varied topics to engage in regular management work to enhance people's knowledge of catastrophe prevention and reduction. Third, emergency management should be integrated into social public management and people's ideas. Finally, they should enhance public security management and lines in order to preserve social peace and stability, as well as to ensure that people may live and work in harmony.

4.3. Evolutionary Path: Timeline Mapping Analysis

The CiteSpace software allows you to analyze the hot topics and their changing trends in different periods. The Timeline mapping of the CiteSpace software allows readers to understand the information of keywords at different time points, and the larger the external chronology indicates the stronger the centrality of the keywords and their greater impact. The higher density of keywords indicates more research results in that period, which also means that the field is in a research boom period. The Timeline mapping of emergency management topic research from 2002 to 2022 shows the development of this research topic more visually. The author combines the Timeline mapping and the comprehensive 18 clusters information to show that the research path evolution of community emergency management has roughly gone through three important development stages from 2002-2003, 2003-2018, and after 2018.

4.3.1. The Initial Exploration Stage: 2002-2003

At this stage, China's emergency management system was not yet established, and the emergency management mode was the single response, decentralized coordination, and temporary response

mode. During this period, only 17 articles were published in the CSSCI database with "emergency management" as the keyword, and the research direction was mainly focused on two aspects. For example, in response to the SARS epidemic in 2003, some scholars analyzed the public health emergency management system in China and proposed to improve the joint prevention and control mechanism by strengthening the authority of the leading department and the management of the core department [9] and other constructive suggestions. The second aspect is the construction of an emergency system. Some scholars studied the structure and model of emergency management systems in the United States, Australia, and other countries through case studies, compared and analyzed them with China, and concluded the experiences and inspirations from them, which were of great significance to the construction of emergency management system in China at that time. Some scholars also took the SARS epidemic as an entry point to analyze the emergency management system and emergency management model in China at that time, clearly pointed out the drawbacks of China's emergency management system, and put forward policy suggestions for emergency planning, crisis management, emergency response, and other aspects. In a comprehensive view of this period, after experiencing the SARS epidemic, scholars analyzed the drawbacks of China's single emergency management system and made a preliminary exploration of a new integrated emergency management model.

4.3.2. Development and Strengthening Phase: 2003-2018

The SARS epidemic in 2003 greatly promoted the improvement and development of the emergency management system in China. The number of effective publications during this period was 1,843, reflecting the importance attached to emergency management research by the academic community. The Emergency Response Law introduced in August 2007 stipulates that the state establishes an emergency management system with unified leadership, comprehensive coordination, categorized management, hierarchical responsibility, and local focus, but the specific practice still faces challenges and difficulties. Some scholars point out the problems of China's emergency management system in terms of institutional settings, working procedures, participating subjects, organization and command modes, emergency plans, technical support systems, etc., and make suggestions for modernization, fragmentation, effectiveness, normalization, and diversification [10]. On the other hand, with the progress of scientific information technology and the rise of emerging fields such as big data and Internet+, many scholars propose to integrate them into the reform of China's emergency management system, reshape the concept, mechanism, institutions, and processes of China's emergency management system, and develop a system for applying information technology in emergency management with principles, guidance, and operability [11]. In a comprehensive view of this period, the main research direction of emergency management in China has been put on the innovation and reform of emergency management systems and the development of emerging fields such as smart city and Internet+.

4.3.3. Deepening Research Phase: 2018 to Present

In 2018, China's Ministry of Emergency Management came into being against the background of the ongoing reform process of the large ministry system, which is a milestone for China's emergency management system, and China began to build an emergency management system with Chinese characteristics. The outbreak of the new crown pneumonia epidemic in 2019 has again triggered the whole society to think about China's emergency management system. The effective number of articles issued at this stage was 862, with more articles issued annually on average than in any previous period. Compared with the previous two phases, three main changes in emergency management research have occurred: First, the main body of emergency management has changed, promoting the sinking

of emergency management authority to the grassroots, encouraging the participation of the public, social groups, enterprises, and other subjects, and changing to a new emergency management model with the participation of multiple subjects. Second, the scope of emergency management has changed, with emergency work focusing more on the whole process and the whole management cycle, focusing on risk prevention, normalized governance, and improving the resilience of China's emergency management model. Third, the concept of emergency management has changed, promoting the appropriate integration of emergency management and performance management, reducing the phenomenon of formalism at the grassroots level, and effectively improving the efficiency of emergency management, while more people-oriented requirements. In this period, China's emergency management system reform has developed deeply, research has deepened, and the level of emergency management has improved.

5. China's Emergency Management Research Future Development Trend Outlook

A research frontier is the most advanced, recent, and promising research topic or research area in scientific research. The frontier hotspots of emergency management were identified and analyzed through the Burst Detection function of CiteSpace software, and a total of 20 keywords with mutational nature were screened, from which the frontier trends of emergency management research can be analyzed and summarized to promote the depth and innovation of research in related fields.

We can find that the Burst intensity of keywords such as "public management", "mechanism" and "evaluation" is relatively insufficient, while "new crown pneumonia", "epidemic prevention and control", "big data", "emergency decision", "public health". The Burst intensity of keywords such as "new crown pneumonia" is relatively high, and the emergence rate of "new crown pneumonia" is as high as 11.37, which indicates that "new crown pneumonia" is quite hot in the field of emergency management. Most of the above keywords have been mutated for two years or more, which constitutes an important part of community emergency management research in different periods. We believe that future research in emergency management will focus on the following three areas.

5.1. Building a Resilient Emergency Management System under a National Governance

Emergency management, as a specific function of national governance, bears the important responsibility of preventing and resolving major security risks, timely response and disposal of various types of disasters and accidents, and carries the important mission of protecting the lives and property of the public and maintaining social stability, which is extremely important in the current critical period of social transformation [12]. For the prevention and control of the new crown pneumonia epidemic, the shortcomings in response to major public emergencies have been revealed to varying degrees in various regions, and in this context, it is particularly important to promote resilient emergency management. Resilient emergency management can combine effective risk response, maintaining social order, and rebuilding a higher level of the stable and secure equilibrium system. To develop a strong emergency management system, ideas about addressing emergencies must be integrated into all aspects of the management cycle, including the entire management process of comprehensive management. Furthermore, people's minds must be indoctrinated with comprehensive governance. At the same time, the inherent potential of emergency management must be tapped. Moreover, the institutional emergency management system should be constantly enhanced to ensure legal protection and nurture professional talent teams, infrastructure building, information exchange, and materials stockpiling. Besides, introspection and learning should be encouraged to provide a firm basis for dealing with unexpected hazards. Finally, high-tech information technology should be actively used to improve emergency management intelligence.

5.2. Transformation of Emergency Response to Permanent Management

The high frequency of various security risks and the growing security needs of the people require emergency management to shift from "surprise management" to "normal management", and the further promotion of normalization of emergency management plays an important role in disaster prevention and mitigation. The transformation of normalized emergency management requires active communication, information sharing, resource dispatching, complementary technology of all elements, and seamless integration and high-speed coordination of all subjects in all aspects. A standardized operation mechanism is a basis for the normalized management of emergency work. Integrating emergency management work into all aspects of daily affairs management is conducive to improving the ability and level of response to public emergencies, as well as attenuating the adverse effects brought about by their occurrence, specifically in terms of risk warning and monitoring, social opinion guidance, emergency preparedness, and response, disposal, and recovery after emergencies, the psychological intervention of the public, and Investigation and evaluation, etc. to speed up the normalization. Decompose all stages of the life cycle of sudden public crisis events, especially the front-end ex-ante risk prevention stage to be solved and dealt with, to effectively improve emergency management capacity and management [13].

5.3. Advancing Emergency Management in the Context of Big Data Precision Refinement

The essence of emergency management is to effectively respond to and deal with uncertain emergencies in the shortest possible time to prevent, mitigate and eliminate the resulting harm. In the current emergency management process, the use of modern information technology means less, management methods are not completely updated, risk warning and monitoring systems are not perfect, easy to appear "information island" and "information chimney" phenomenon. With the rapid development of science and technology, emergency management should also improve the level of precision and refinement of governance. Use the Internet of Things, artificial intelligence, big data, and other emerging technologies to achieve intelligent terminal coverage, comprehensive perception of risk sources and intelligent analysis, dynamic monitoring, and real-time warning of the safety operation status [14]. Cloud computing mines, integrates effective information in massive data, and analyzes the inherent development patterns and characteristics. The "association" of data and information from a data-driven force can bring together the data resources of multiple subjects to form real-time monitoring of emergencies and realize accurate governance through data integration and intelligent analysis of information related to event nodes.

6. Conclusion

In this paper, CiteSpace software was used to sort out and visually analyze the research results of emergency management in the Chinese Social Sciences Citation Index database from 2002 to 2022, and the following conclusions were drawn based on the prediction of the future development trend based on the mutation rate of keywords: (1) Emergency management research in China has experienced three stages of starting exploration, strengthening and deepening. It is widely distributed in the fields of society, politics, management, economics, medicine, and other disciplines, and presents the characteristics of multi-disciplinary integration with the public domain as the core. (2) Improve the emergency management system in the aspects of political leadership, legal guarantee, intellectual governance support, reflection, and learning, effectively improve risk control and response, and stabilize social security. (3) Integrate emergency management into daily affairs management, and promote information sharing, resource scheduling, and technical complementarity in the whole process of emergency management, to realize rapid linkage and efficient coordination.

(4) Make full use of modern information technology to improve the precision and refinement level of risk warning, information exchange, mass psychological comfort, and other aspects.

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