

Article

Visualizing the Knowledge Base and Research Hotspot of Public Health Emergency Management: A Science Mapping Analysis-Based Study

Kai Chen ¹, Xiaoping Lin ¹, Han Wang ², Yujie Qiang ² , Jie Kong ², Rui Huang ², Haining Wang ² and Hui Liu ^{2,*} 

¹ Zhejiang Institute of Communications, Hangzhou 311112, China; chen_kai_gis@zjvtit.edu.cn (K.C.); linxp@zjvtit.edu.cn (X.L.)

² College of Quality and Safety Engineering, China Jiliang University, Hangzhou 310018, China; wanghancjlu@gmail.com (H.W.); qy033845@gmail.com (Y.Q.); kongjiehao@cjlj.edu.cn (J.K.); huangrui8782@gmail.com (R.H.); whnfyy@cjlj.edu.cn (H.W.)

* Correspondence: hui.liu@cjlj.edu.cn

Abstract: Public health emergency management has been one of the main challenges of social sustainable development since the beginning of the 21st century. Research on public health emergency management is becoming a common focus of scholars. In recent years, the literature associated with public health emergency management has grown rapidly, but few studies have used a bibliometric analysis and visualization approach to conduct deep mining and explore the characteristics of the public health emergency management research field. To better understand the present status and development of public health emergency management research, and to explore the knowledge base and research hotspots, the bibliometric method and science mapping technology were adopted to visually evaluate the knowledge structure and research trends in the field of public health emergency management studies. From 2000 to 2020, a total of 3723 papers related to public health emergency management research were collected from the Web of Science Core Collection as research data. The five main research directions formed are child prevention, mortality from public health events, public health emergency preparedness, public health emergency management, and coronavirus disease 2019 (COVID-19). The current research hotspots and frontiers are climate change, COVID-19 and related coronaviruses. Further research is needed to focus on the COVID-19 and related coronaviruses. This study intends to contribute inclusive support to related academia and industry in the aspects of public health emergency management and public safety research, as well as research hotspots and future research directions.

Keywords: public health; emergency management; public safety; research hotspot; bibliometrics; science mapping



Citation: Chen, K.; Lin, X.; Wang, H.; Qiang, Y.; Kong, J.; Huang, R.; Wang, H.; Liu, H. Visualizing the Knowledge Base and Research Hotspot of Public Health Emergency Management: A Science Mapping Analysis-Based Study. *Sustainability* **2022**, *14*, 7389. <https://doi.org/10.3390/su14127389>

Academic Editors: Jie Li, Jie Xue, Dengsheng Wu and Xiaolong Zheng

Received: 23 May 2022

Accepted: 13 June 2022

Published: 16 June 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Since the beginning of the 21st century, public health emergencies have occurred frequently, and large-scale outbreaks of SARS-CoV-1 virus, H1N1 influenza virus, Ebola virus, Zika virus and SARS-CoV-2 virus (COVID-19) have been witnessed. The large-scale epidemic at the end of 2019 had a significant impact on the sustainable development of society. The definition of a public health emergency includes both its causes and triggers as well as its health consequences. A situation becomes an emergency when the health consequences of the situation may exceed the ability to handle it on a daily basis [1]. Therefore, public health emergencies are extremely unexpected and harmful. In fact, every large-scale outbreak of public health emergencies had a significant impact on the economic development and social stability and sustainability of all countries in the world. At the same time, countries with different levels of economic development have different capabilities of managing in response to public health emergencies. When public health

emergencies occur, countries with relatively low economic levels are vulnerable to greater impact, and their government management capacity, material reserves, and medical levels are relatively low. Countries with relatively advanced economic levels can often respond to incidents quickly, effectively control them and provide support to other countries. They can push their defense lines to other countries, learn the latest developments directly, gain prevention and control experience, and maintain and develop their own prevention and control capabilities. The impact of SARS-CoV-1 virus on the Chinese transportation industry has been enormous and is considered irreparable and unrecoverable [2]. The Ebola epidemic in West Africa from 2014 to 2016 caused 28,637 infections, resulting in approximately 11,000 deaths and economic losses of USD 6 billion in Africa, and more than USD 12 billion worldwide [3]. COVID-19 remains a massive epidemic today. As of early February 2021, there are more than 100 million infections and more than 2.31 million deaths worldwide, and these numbers are still increasing. Many countries have closed their main cities, suspended international flights, and people's daily work and life are subject to suspension. The economic losses and social sustainable development impacts that have been caused are incalculable. The damage caused by the unprecedented pandemic virus shows that public health emergency management capacity remains largely inadequate. It can be seen that the improvement of public health emergency management capability is urgent and should be paid attention to by society.

At present, there are some research results on various aspects related to public health emergency management. When public health emergencies occur, scholars have put forward some suggestions for improving the allocation of resources and manpower in medical institutions [4,5]. For the purchase of basic materials by ordinary people in emergencies, some researchers have conducted research on specific changes in behavior and the supply of materials [6–8]. When preparing for an unknown emergency, scholars have put forward more complete countermeasures in terms of personnel preparation, plan formulation, and management framework [9–12]. Some scholars have put forward specific plans for specific areas and management methods between multiple areas [13,14]. Many researchers believe that enhancing the transparency, accuracy, and ease of communication of information when emergencies occur can help facilitate effective responses to the events [15–17]. There has been a certain research foundation on public health emergency management. Researchers have conducted extensive research on different areas, groups, and solutions involved in public health emergency management, and the research results have provided greater theoretical and technical support for public health emergency management, which has also meant that public health emergency management research has entered the application stage. It is a relatively macroscopic understanding of the application of public health emergency management research by scholars, and it is difficult to express the latest information related to specific topics from the current understanding. In particular, the explosive growth rate of knowledge makes it more difficult to fully understand public health emergency management research. With the digitalization of scientific literature, it is possible to tap into research hotspots and make progress through scientific and technical literature. However, few scholars have conducted systematic analyses on the current research status of public health emergency management. Therefore, we used bibliometric and science mapping technology to understand the current situation and development trends of public health emergency management research from the perspective of bibliometrics.

Bibliometrics is an interdisciplinary science that uses mathematical and statistical methods, which can be used to quantitatively analyze knowledge carriers [18]. The approach has been used by many scholars in different fields, such as sustainable development [19], nanocatalysis [20], cybernetics [21] and medical big data analysis [22]. Additionally, bibliometric and science mapping technology has been introduced in SafeMetrics quantitative science studies for safety science, such as safety culture [23], road safety [24], process safety [25], emergency evacuation [26], risk communication [27], fire safety [28,29] and bibliographic synopsis analysis of safety science [30]. In particular, the Safety Science Journal has launched a special issue on Mapping Safety Science [31]; the publication of

relevant papers is influential in the communication of scholars. Therefore, it can be said that scholars may use this approach to understand how the data are connected, which can reveal the structure and development of research results in this field [32]. The development of computing technology makes it possible to process a large amount of data, and bibliometrics has developed to a new level [29]. Combined with visualization technology, we can intuitively show the development path and internal relations of related research fields.

2. Data Sample and Research Methods

2.1. Data Collection

SSCI and SCI-E in the Web of Science Core Collection were selected as the target database. The search formula was set to TS = (Emergency) AND TS = (Public health) in the advanced search. The retrieval time was from 2000 to 2020 (as of November 2020). The search language was “All languages” and the document type “All document types”. After the initial search, the search results were refined through the Web of Science category “Public Environmental Occupational Health”. The 3723 search records finally obtained were used as the research samples of this paper. The retrieval strategy and retrieval process for the data set are shown in Table 1.

Table 1. Data sample retrieval strategy and retrieval process.

No.	Retrieval Formula	Data Set	Number of Records	Periods
1	TS = (Emergency)	A	229,933	2000–2020
2	TS = (Public health)	B	287,972	2000–2020
3	TS = (Emergency) NOT TS = (Public health)	$A \sim B$	217,303	2000–2020
4	TS = (Public health) NOT TS = (Emergency)	$B \sim A$	275,345	2000–2020
5	TS = (Emergency) OR TS = (Public health)	$A \cup B$	505,279	2000–2020
6	TS = (Emergency) AND TS = (Public health)	$A \cap B$	12,630	2000–2020
7	TS = (Emergency) AND TS = (Public health)Public Environmental Occupational Health	-	3723	2000–2020

$A \cup B$: joint dataset with articles from dataset A and B; $A \cap B$: dataset with articles found both in dataset A and B; $\sim A$: articles from the dataset were excluded.

2.2. Methods and Visualization Tools

VOSviewer and CiteSpace were used for bibliometric analysis. Van Eck and Waltman proposed a new visualization method for node similarity [33,34] and integrated this algorithm into VOSviewer software. The foundation of this algorithm enables VOSviewer to visually express the correlation strength between two nodes in the visual analysis, and the visual effect is intuitive. Therefore, VOSviewer will be used when it is necessary to highlight the clustering relationship and the closeness of the connection between nodes. In addition, CiteSpace was used to display the evolution of literature information more intuitively over time [35–38]. The methods and processes used in the research are shown in Figure 1.

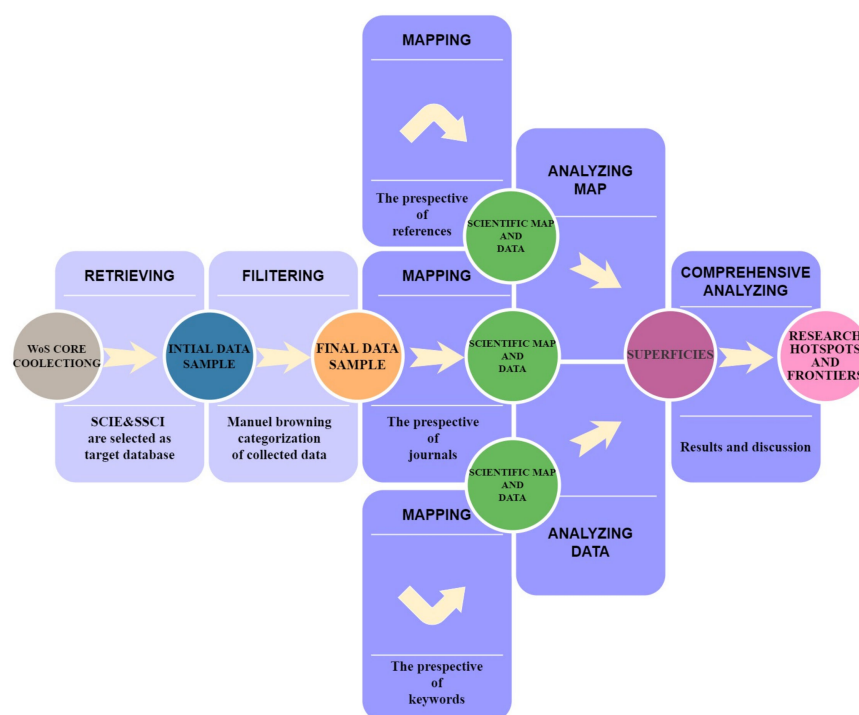


Figure 1. The methods and processes used in the research.

3. Results and Discussion

3.1. Temporal Distribution

The time distribution of the publication volume of public health emergency management research literature is shown in Figure 2. It can be seen that only a small fluctuation occurred during the period 2008–2013. In general, the annual publication volume is on the rise. The data cut-off was November 2020. The number of posts published in 2020 was higher than other years. The average annual publication amount is 177.29. Combining the small fluctuations in the volume of publications from 2008 to 2013, the development of public health emergency management research is divided into three stages.

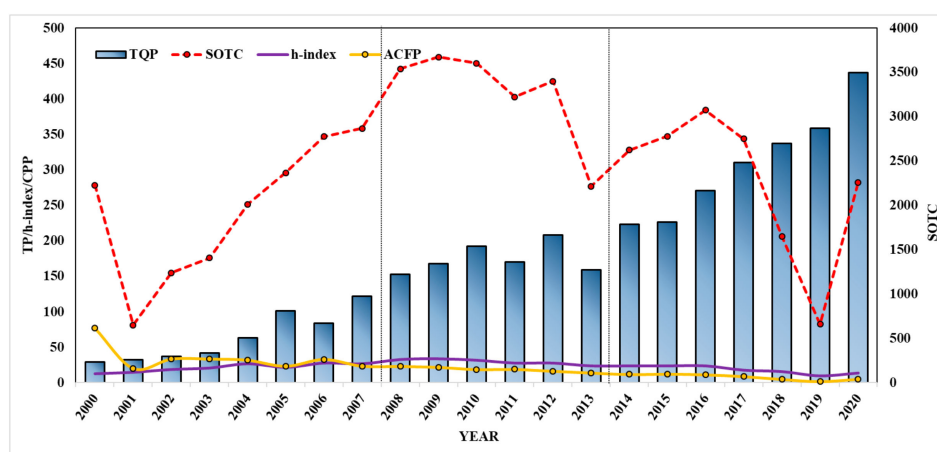


Figure 2. Distribution of the number of publications by year. TP: Total Publications; SOTC: Sum of Times Cited; CPP = Citations per Paper.

The preliminary development stage (2000–2007). A total of 510 papers were published in the eight years during this stage, accounting for 13.70% of the statistical data, and

63.75 papers were published annually. Moreover, the annual number of publications in the eight years was lower than the average level, and the growth rate was relatively slow.

The stable development stage (2008–2013). A total of 1050 papers were published during the six years at this stage, accounting for 28.20% of the statistical data. The average annual publication of 175 papers is very close to the overall average annual publication volume, and the overall publication volume shows up and down fluctuations, with the 2010 and 2012 publication volumes exceeding the overall average.

The rapid development stage (2014–2020). A total of 2163 papers were published in the seven years during this stage, accounting for 58.10% of the statistical data. An average of 309 papers were published every year, growing rapidly. In terms of the annual growth rate of the number of publications, the years with higher growth rates at each stage of development are often associated with major public health emergencies. The change in growth rate is shown in Figure 3. It can be seen that in the preliminary development stage, the global pandemic of the SARS virus in 2003 resulted in extremely high publication growth rates in 2004 (50.00%) and 2005 (60.31%). In the stable development stage, the growth rate was extremely high in 2012 (22.35%), when respiratory syndrome broke out in the Middle East. In the rapid development stage, the number of publications increased at a higher rate in 2014 (40.25%) and 2020 (21.73%), with the Ebola outbreak in West Africa in 2014 and the COVID-19 pandemic that began in late 2019.

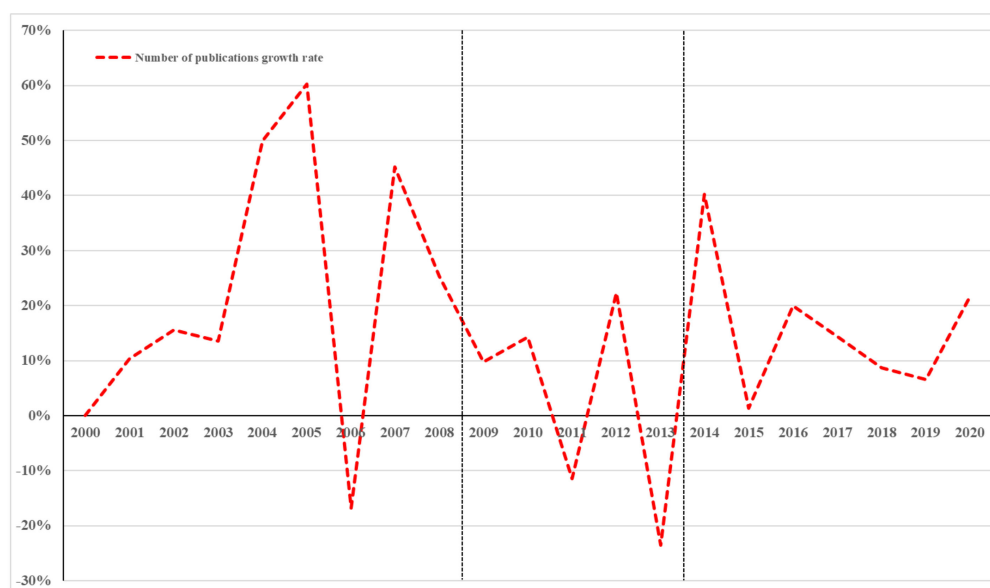


Figure 3. Growth rate of the number of publications by year.

3.2. Institutional Distribution

Through the analysis of the sample data, we have obtained 3932 institutions that have published related literature on public health emergency management. The top 10 institutions are listed in Table 2. Based on the data listed in Table 2, eight of the top ten institutions are from the United States, accounting for a large proportion, and the remaining two are from Canada and a multinational institution. It can be seen that the United States have the strongest scientific research capabilities in the field of public health emergency management. The top three institutions are the Centers for Disease Control and Prevention (231), Harvard University (78) and Columbia University (65). The three institutions with the highest average cited frequency are all from the United States, including University of California, San Francisco (51.09), Johns Hopkins University (28.63) and University of California, Los Angeles (27.86).

It can be seen that the Centers for Disease Control and Prevention has the highest volume of publications among all institutions. The research in public health emergency

management was paid attention to earlier by this institution, and the research content is extensive. Arnon [39], Dennis [40], Inglesby [41] and Borio [42] respectively studied and discussed the medical and public health management issues of botulinum toxin, tularemia, plague and hemorrhagic fever viruses as biological weapons. Keim [43] and Subbarao [44] argued that public health problems that may be caused by climate change or sudden natural disasters can be reduced by educating the population or gaining insight into the emergency response capacity of the community.

Hutchins [45] believes that protecting disadvantaged groups in society during the influenza pandemic is an important strategic task. Wray [46] and Khan [47] believe that when major public health incidents occur, managers should try to communicate better with the public about health threats so that the public can take the initiative to take self-protection measures. The latter even believes that better integration of public health information and social networks will be the next public health revolution. The public health countermeasures related to traumatic brain injury made by Taylor [48] and Coronado [49] have also received a lot of attention. In response to the COVID-19 pandemic, Perio [50], Koonin [51] and Dirlikov [52] respectively proposed strategies for basic materials, medical equipment, and emergency response from related health departments. It can be seen that the overall research content of the Centers for Disease Control and Prevention pays more attention to macro public health issues.

Table 2. Top 10 quantity of publications by institutions on related information in public health emergency management studies.

Rank	Institution	Country	Quantity	Total Link Strength	TCF	ACFP
1	Centers for Disease Control and Prevention	USA	231	123	3195	13.83
2	Harvard University	USA	78	80	1716	22
3	Columbia University	USA	65	57	1665	25.62
4	Johns Hopkins University	USA	64	49	1832	28.63
5	Emory University	USA	59	47	984	16.68
6	University of Toronto	Canada	54	29	796	14.74
7	University of Washington	USA	54	31	875	16.20
8	World Health Organization	Global	54	29	538	9.96
9	University of North Carolina	USA	52	20	1126	21.65
10	University of California, San Francisco	USA	46	26	2350	51.09

TCF: Total Cited Frequency; ACFP: Average Cited Frequency of Publication.

Among the institutions listed in Table 2, University of California, San Francisco has the highest sum of times cited, and the research content is relatively extensive. The research on the risk of HIV infection with injecting drug users as the key factor by Rhodes [53] has attracted the most attention among statistical data. Smoking [54,55], alcoholism [56,57], drug use [58] and such addiction-related health problems are paid attention to the most by institutions. Enteen [59] and Banta-Green [60] discussed overdose related to two kinds of drugs. It can be seen that the overall research content organization is close to matters related to the daily life of people.

VOSviewer was used to screen out institutions with a starting volume of less than 15 and obtained 66 institution records. The knowledge map of the organization co-authored network is shown in Figure 4. The node diameter has a positive correlation with the literature amount, and the node connection width has a positive correlation with the cooperation intensity. It can be seen that the cooperation between the Centers for Disease Control and Prevention and Johns Hopkins University is the most frequent. Each color

in Figure 4 represents a cluster, and the calculation generates four clusters. The red and green clusters are relatively large clusters, while the yellow cluster has only one node. The red cluster contains 35 nodes and has the largest node, for the Centers for Disease Control and Prevention, in the entire graph. The research content of the institutions in the cluster involves public health problems with different age groups [61–63], global public health emergency response capabilities [64–66], the use of modern methods to improve public health response speed [67,68] and hot issues [69–72]. The largest node in the green cluster is Harvard University; the institutions in the cluster mainly focus on public health issues caused by climate change [73–75], air environmental issues [76–78], and hot social issues [79,80]. There are eight nodes in the blue cluster, and the University of Toronto is the largest node among them. Institutions within the cluster have conducted extensive research on information transmission in the event of a public health event [81–83], improving response and recovery capabilities [84–86].

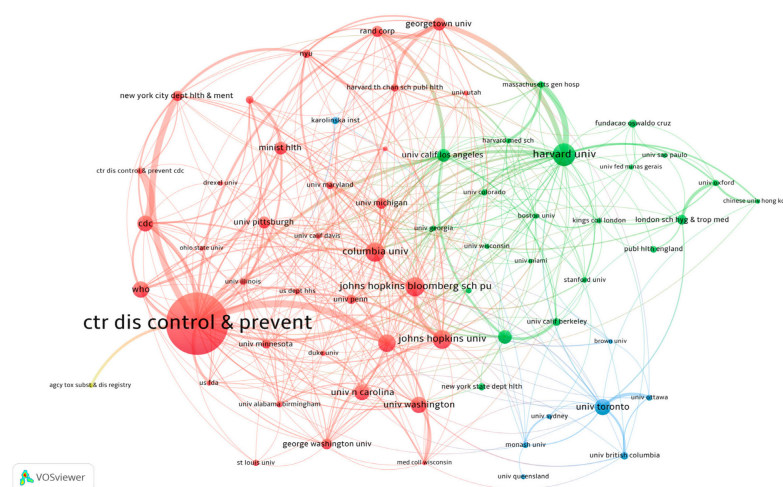


Figure 4. Cooperation between institutions in public health emergency management studies.

3.3. Research Knowledge Base

According to Henry Small's co-citation relationship, if two documents are cited by a third document at the same time, then the two documents are co-cited [87]. Documents with co-citation constitute the knowledge foundation of the research field. The journals published by these articles with co-citation relationships are the carriers of the knowledge foundation in the area. Meanwhile, journals with high co-citation are also the core journals at the forefront of research in this field [88]. Through the analysis of co-cited references and their sources by VOSviewer, the obtained data showed that the references and journals with high co-citation frequency could be considered as the knowledge foundation and core journals in the research field of public health emergency management.

3.3.1. Co-Citation Analysis of the Literature

The closeness of the relationship between the study contents can be reflected by co-citation; the higher the frequency, the closer it is [89]. The minimum frequency is set to 13 and plotted with VOSviewer to obtain 64 nodes, as shown in Figure 5. The node diameter is positively correlated with the frequency, and the closer the node spacing, the stronger the relationship. A total of four clusters are formed: red cluster (30), green cluster (14), blue cluster (12) and yellow cluster (8). Four clusters were analyzed.

Red cluster: Covello [90] (18 co-citations) published the earliest paper in the cluster, briefly introducing the theory and basic model of risk communication and providing ideas for improving the perception of disease outbreak risk. Nelson's paper [1] (41 co-citations) on the concept of public health emergency preparedness received the most attention. The paper explored the composition of public health emergencies, the main body of responsibility,

and the required capabilities. Qureshi [91] (28 co-citations) studied the various abilities and willingness barriers that may exist in the relevant medical staff during a major disaster, which can be improved by intervention. Glik [92] (24 co-citations) defined crisis risk communication, traced its origin to many fields, and explored how to incorporate the basic principles of communication into emergency preparedness and crisis risk communication to promote public health. Norris [93] (21 co-citations) proposed achieving a certain public health event resistance through the four types of adaptability in the community. Emergency preparedness is the most basic work of public health emergency management. Standards, material preparation, material information, material distribution and other aspects of emergency preparation work should be improved. In addition, long-term investment in public welfare, the training of professionals and education of the general public are also crucial. The establishment and improvement of the emergency preparedness system is a long-term systematic project that requires the joint participation of the whole of society and is combined with modern information means to improve overall efficiency. With the background of globalization, international cooperation in emergency preparedness can be continuously promoted so that lower economically developed countries can have a certain standard of emergency response capacity while the impact of public health emergencies that may affect the world can be further reduced.

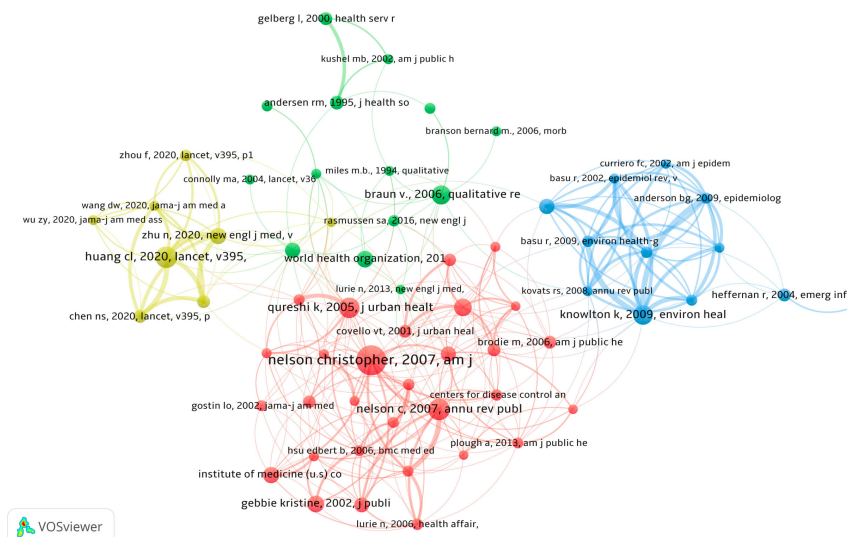


Figure 5. High co-citation publications in public health emergency management studies.

Green cluster: Braun [94]’s (26 co-citations) article was the most frequently cited one in the cluster, and found that topic analysis was an effective and flexible method in psychological research, which can be combined with some parts of public health emergency management. Moher [95] (21 co-citations) found that systemic reviews and meta-analyses are becoming more and more important in health care, and developed a system of Preferred Reporting Items for Systemic Reviews and Meta-analyses to explore the practical effects of existing research topics. Andersen [96] (19 co-citations) points out that the Behavioral Model of Health Services Use has been in use for many years and assesses the implications for sustainability. This cluster discusses the introduction of more research and analysis methods or models into public health emergency management through interdisciplinary and cross-cutting approaches.

Blue cluster: Knowlton [73] (27 co-citations) thought the 2006 California heat wave had a significant impact on the incidence of heat-related causes among all age groups. By understanding these effects and the vulnerability of specific populations, people can prepare for heat waves to adapt to global warming. Semenza [97] (21 co-citations) found that among the people who died in the Chicago heat wave in 1995, those who were at the greatest risk were those with disease. Interventions for these people can reduce deaths

related to high temperatures. Anderson [98] (15 co-citations) thought that many factors had not been well considered when discussing the relationship between weather and mortality. Research has found that adaptability, individual susceptibility, and community characteristics all affect weather-related mortality. It can be seen that the public health problems caused by the climate environment are the focus of the highly co-cited papers in this cluster. Climate change was considered one of the most important threats to human health. In addition to increasing the incidence of heat-related diseases, rising temperatures will accelerate the reproduction of some hosts that can carry the virus, while vulnerable groups in populations such as those with chronic diseases will be more affected. In addition, extreme weather such as heavy rain days will also lead to an increased risk of water-borne diseases. In the future, we should strengthen the assessment of the impact of climate change on public health, formulate specific policies according to the specific situation, focus on identifying vulnerable groups, and carry out key prevention and control.

Yellow cluster: Huang [99] (29 co-citations) reported on the epidemiological, clinical, laboratory and radiological characteristics, treatment and clinical results of COVID-19, which received extremely wide attention. Zhu [100] (22 co-citations) reported the emergence and isolation of a previously unknown β -coronavirus in Wuhan, China, the seventh coronavirus to infect humans, and the actual conditions of three patients are described in the paper. Chen [101] (18 co-citations) tried to clarify the epidemiology and clinical characteristics of COVID-19 through known cases. The paper published by Slovic [102] (13 co-citations) is the earliest one in the cluster. It explains that risk perception and correct decision-making after perception play a vital role when encountering risks. This cluster focuses on the virus research after the COVID-19 outbreak, including the virus's structure, disease pathological characteristics, and epidemiological investigation. Due to the continuous changes, the research results in this cluster will be developed rapidly.

3.3.2. Journals Co-Citation Analysis

To evaluate academic journals, we applied journal co-citation analysis to conduct quantitative analysis. Journal co-citation is shown in Figure 6, with a total of 72 nodes. The node diameter is positively correlated with frequency, and the closer the nodes are spaced, the stronger the relationship.

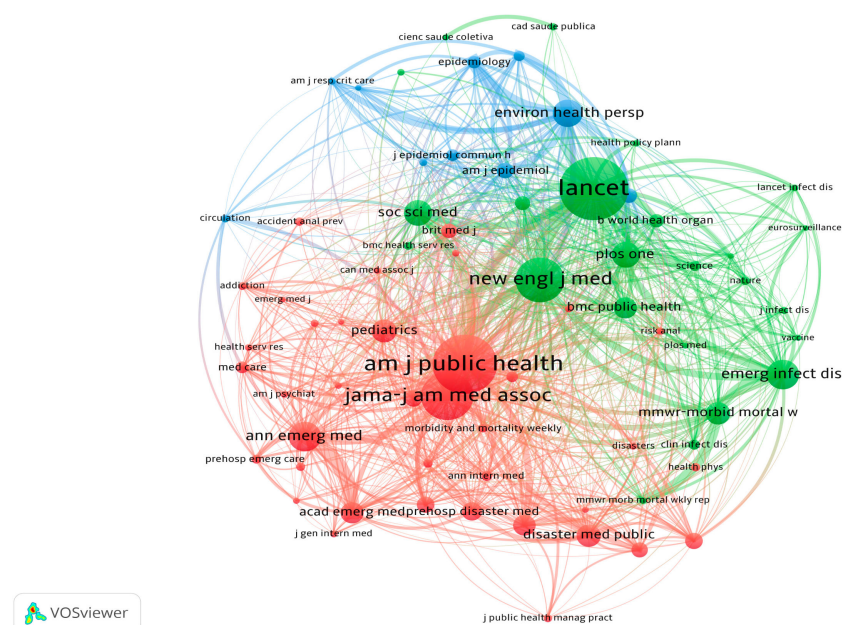


Figure 6. High co-citation journals in public health emergency management studies.

For the three clusters of red, green and blue, the number of red cluster nodes is the largest. Among them, the journals with higher numbers of co-citation were the *American Journal of Public Health* (1618 co-citations), *Jama-journal of The American Medical Association* (1311 co-citations), *Annals of Emergency Medicine* (806 co-citations), *Pediatrics* (631 co-citations), and *Disaster Medicine and Public Health Preparedness* (584 co-citations), and their focuses were on improving public health. The green cluster is based on *Lancet* (1724 co-citations), *New England Journal of Medicine* (1228 co-citations), *Emerging Infectious Diseases* (804 co-citations), *Social Science & Medicine* (709 co-citations), and *PLoS ONE* (698 co-citations). The cluster focuses on papers that are likely to change clinical practice or innovative research on certain diseases. The main journals in the blue cluster are *Environmental Health Perspectives* (753 co-citations), *American Journal of Epidemiology* (425 co-citations), *International Journal of Environmental Research and Public Health* (399 co-citations), *Epidemiology* (347 co-citations) and *Journal of Epidemiology and Community Health* (326 co-citations). The focus is mainly on epidemics. In terms of the number of co-citations, the *American Journal of Public Health*, *Lancet*, and *Environmental Health Perspectives* were the highest in each cluster and could be considered core journals with different research orientations.

3.3.3. Analysis of High Citation Frequency Literature

We used the total cited frequency as the evaluation criterion to sort the papers, and the top 10 papers are listed in Table 3. Literature with a high citation frequency can reflect academic influence from the perspective of literature citation, which is an important indicator for evaluating the development of a discipline, the research ability and academic reputation. At present, it is generally used to evaluate the international academic level and influence of academic institutions and scholars [26].

Smith [103] has the highest total number of citations in the statistics. His research mentioned that Bangladesh was the country with the largest number of poisoning incidents caused by arsenic contamination of groundwater in history. Improving the quality of drinking water at the national level could reduce the morbidity and mortality of gastrointestinal diseases. Therefore, the arsenic content in drinking water should be tested all over the world to protect people's health. Hanna-Attisha [104] also paid attention to the problem of drinking water, and found that in places where the social economy is relatively challenged, the lead content in children's blood will be higher than the average level due to poor water quality. The paper published by Taylor [48] ranks second in the total number of citations in statistics, and it is mentioned that traumatic brain injury (TBI) could bring adverse clinical consequences, including death and disability. There are many possibilities for causing TBI, such as motor vehicle collisions, falls, or attacks. In recent years, sufficient progress has been made in the prevention of motor vehicle crashes to reduce the number of cases associated with traumatic brain injury. Wang's research [105] has the highest number of citations per year in statistical data, focusing on the adverse psychological effects and psychiatric symptoms during the COVID-19 epidemic. Additionally, Liu [106] and Rodriguez-Morales [107] have conducted research on COVID-19 compared with SARS virus and its clinical conditions, which have also received a lot of attention in a short period.

As can be seen from the data in Table 3, there were three articles related to the topic of COVID-19, and the AACF index was quite high due to the close time of publication. It could be seen that the research in the field of public health was close to the social hotspots.

Table 3. Top 15 quantity of cited publications on related information in public health emergency management studies.

Rank	TCF	AACF	Title	Authors	Journal	Year	IQ	CQ
1	1195	56.90	Contamination of drinking-water by arsenic in Bangladesh: a public health emergency	Smith et al. [103]	Bulletin of the World Health Organization	2000	3	3
2	645	161.25	Traumatic Brain Injury-Related Emergency Department Visits, Hospitalizations, and Deaths—United States, 2007 and 2013	Taylor et al. [48]	MMWR Surveillance Summaries	2017	2	1
3	618	618	Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China	Wang, et al. [105]	International Journal of Environmental Research and Public Health	2020	3	2
4	580	36.25	The social structural production of HIV risk among injecting drug users	Rhodes, et al. [53]	Social Science & Medicine	2005	6	1
5	514	24.48	Frequency and correlates of intimate partner violence by type: Physical, sexual, and psychological battering	Coker, et al. [108]	American Journal of Public Health	2000	3	1
6	448	448	The reproductive number of COVID-19 is higher compared to SARS coronavirus	Liu, et al. [96]	Journal of Travel Medicine	2020	4	4
7	401	80.2	Elevated Blood Lead Levels in Children Associated with the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response	Hanna-Attisha, et al. [104]	American Journal of Public Health	2016	3	1
8	389	27.79	Effect of Body Mass Index on pregnancy outcomes in nulliparous women delivering singleton babies	Bhattacharya, et al. [109]	BMC Public Health	2007	3	1
9	376	31.33	The 2006 California Heat Wave: Impacts on Hospitalizations and Emergency Department Visits	Knowlton, et al. [73]	Environmental Health Perspectives	2009	8	1
10	320	320	Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-analysis	Rodriguez-Morales, et al. [107]	Travel Medicine and Infectious Disease	2020	32	14

TCF: total cited frequency; AACF: average annual cited frequency; IQ: institutions quantity; CQ: countries quantity.

3.3.4. The Journal Dual-Map Overlay Analysis

The dual-mapped overlay view of the cited journal type and the number of focus papers is shown in Figure 7. The labels in the figure represent the research content of each journal. The cited journal labels are on the left side of the figure, and the cited journals are on the right. The trail of citation links provides an understanding of the relationships between disciplines. The change in the trajectory from one field to another indicates that one discipline is influenced by the papers of another [28,110].

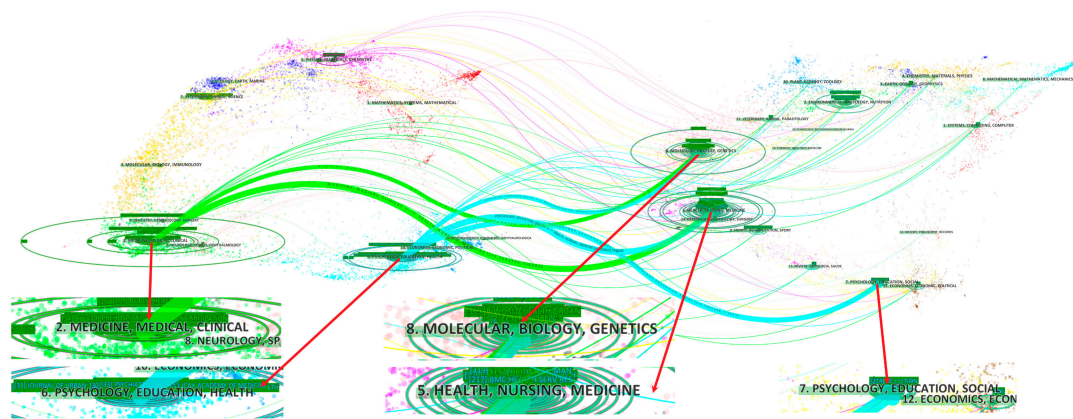


Figure 7. The dual-map overlay in public health emergency management studies.

In general, the published papers are mainly targeted journals in medical, clinical, psychological, educational, and health-related fields, while the cited journals are mainly concentrated around molecular biology genetics, health and nursing medicine and psychology and education-related fields. It can be seen that the cited journals mainly provide the relevant basic knowledge of the published literature.

3.4. Research Hotspots and Frontiers

In this section, we will explore the research hotspots and research frontiers of public health emergency management. The research direction refers to the current research content of research topics with a clear development context and complete development process. The research hotspots are those with higher degrees of attention in the current research direction. The research frontier is a forward-looking, potential and leading research direction in the process of scientific development.

3.4.1. Research Hotspot

The core content of the article can be reflected by keywords and can be used to identify research frontiers [111]. A total of 8715 keywords were selected with a frequency of more than 30 and they were checked one by one. After proper editing, 100 keywords were obtained. Table 4 was obtained by extracting the data from the top 10 keywords in the frequency ranking. We can see that “public health”, “health” and “care” are words with high occurrence and total link strength, which are closely related to public health.

Table 4. Top 10 occurrence frequency keywords in public health emergency management studies.

Rank	Keywords	Occurrences	Total Link Strength	Rank	Keywords	Occurrences	Total Link Strength
1	Public Health	462	1090	11	Children	135	387
2	Health	245	603	12	Epidemiology	130	346
3	Care	238	594	13	Surveillance	126	300
4	United-States	192	560	14	COVID-19	110	200
5	Mortality	182	497	15	Disaster	101	267
6	Emergency Preparedness	177	388	16	Management	92	252
7	Preparedness	170	409	17	Prevention	88	257
8	Risk	162	461	18	Services	79	197
9	Impact	156	477	19	Outbreak	77	183
10	Emergency	140	338	20	Emergency Department	76	192

The keyword co-occurrence analysis was performed in VOSviewer, and the keyword co-occurrence knowledge graph obtained. As can be seen from Figure 8, each node represents a keyword. The node size has a positive correlation with frequency, and the connection width of the node connection has a positive correlation with the relation between keywords. Four clusters were formed in total, which were red, green, blue and yellow, in the order of volume.

Red cluster: As shown in Figure 8, “Public health” (462) is the most frequent node in this cluster. “Emergency preparedness” (177), “preparedness” (170), “emergency” (140), and “COVID-19” (110) are other keywords with a high frequency. It can be considered that the cluster as a whole revolves around the keywords “public health” and “emergency preparedness”, focusing on the continuous improvement of public health emergency management capabilities. Pestronk [112] earlier proposed that funds should be fully utilized to train talents, which can provide reserves for both emergencies and government public health departments. Nelson [113] reviewed the previous public health emergency management methods and proposed adding some emerging technologies to better respond to emergencies. Bochenek [11] proposed a new conceptual framework that integrates public health and traditional emergency management so that it can be applied more dynamically and flexibly according to the actual situation. Bardosh [114] proposed that social science-related knowledge should be incorporated into the prevention and response to epidemics. Through comparison of the response to COVID-19 and Ebola, many gaps were found and recommendations were made. COVID-19 has become a subject of much concern in clustering in the past year, and scholars from different countries have studied it from different angles, including the psychological state of medical workers [115], basic cognition of medical workers [116,117], port management [118] and drug use management [119]. After a period of anti-epidemic struggle, He [120] found that he could better prepare for and respond to the pandemic through experience. Ortega [121] proposed countermeasures to improve the health equality problem caused by language differences.

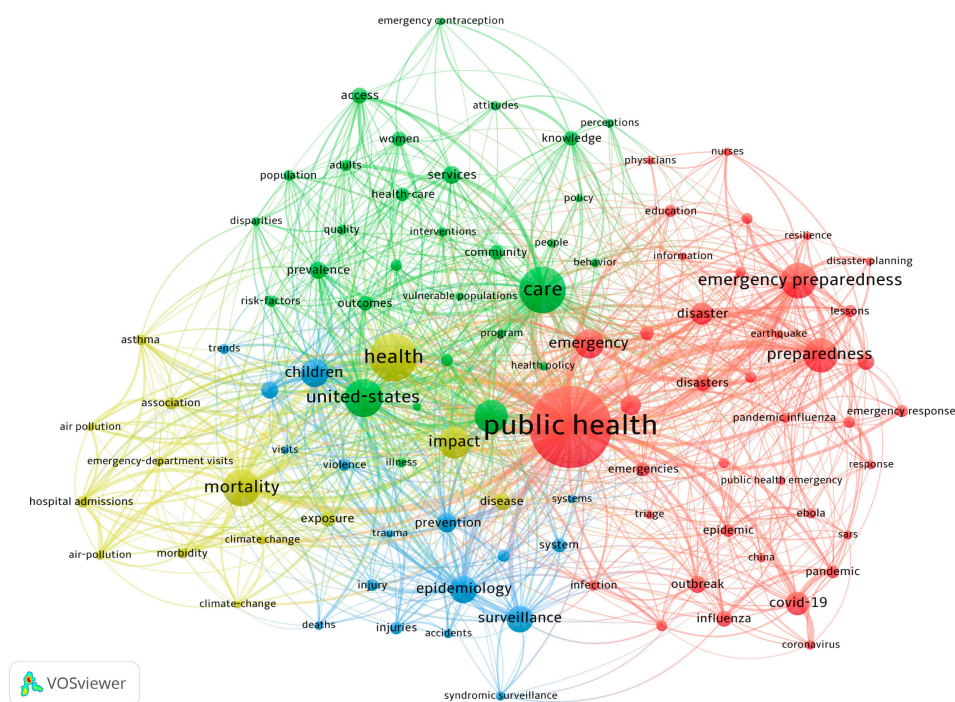


Figure 8. Co-occurrence of keywords network in public health emergency management studies.

Green cluster: The most frequently occurring keyword in this cluster is “care” (238). “United-states” (80), “risk” (55), “services” (79) and “prevalence” (75) are the other keywords with higher frequency. The main content of the cluster is the nursing situation under

various public health scenarios. Molyneux [122] mentioned that when hospitals in some developing countries encounter emergency situations and a large number of patients are admitted to the hospital, if a better nursing process is formed, the mortality rate can be reduced. At the same time, Whitten [123] found that patients' distrust of care providers and the government were major obstacles to health services and need to be reasonably improved. Cormier [124] proposed that more health care emergency preparedness coalitions, which were composed of public health and public safety-related departments to deal with large public health incidents, should be established. During the COVID-19 pandemic, Rosario [125] discussed the trade-off between cancer care and the risk of infection, and Devillanova [126] discussed the health care of undocumented immigrants.

Blue cluster: "Children" (135) is the keyword with the highest frequency in this cluster. "Epidemiology" (45) and "surveillance" (126) are the other two keywords with high frequencies in this cluster. The public health problem of children in society is the focus of this cluster. Dziuban [127] found that children had unique needs in public health emergencies and the recovery from public health emergencies. Children's differences in physiology, behavior, development, social and mental health should be treated with special attention. Bartenfeld [128] also found that the differences between children's cognitive abilities and those of adults during public health emergencies would create unique needs, and that children's characteristics should be fully considered when establishing public health emergency plans. Shah [129] conducted a study on emergency medical services for children and found that service providers should receive adequate training. Krass [130] conducted a study and found that children hospitalized in psychiatry are more susceptible to COVID-19 than the general population. Nicholson's [131] research found that during the COVID-19 epidemic, the number of times children's parents seek medical care due to safety concerns had significantly decreased. In fact, the reliability and safety of pediatric medical services could be reassuring.

Yellow cluster: "Health" (245) is the most frequently occurring keyword in this cluster, and it is also a component of the search sentence. "Mortality" (245) and "impact" (156) are the other two keywords with high frequency. The main content studied in the cluster is the mortality changes caused by various public health conditions. Knox [132] mentioned that suicide had always been a mental health problem and improved suicide prevention interventions. Zanobetti [133] found that among the three factors of gender, race, and social factors, the mortality rate of females to air pollution was higher than that of males only in terms of gender, and the other two factors had no significant impact. Wang [134] studied whether neutrophil-to-lymphocyte ratio (NLR) and platelet-to-lymphocyte ratio (PLR) were related to death through actual cases of COVID-19 infection and found that NLR was an effective biological indicator for predicting mortality. Monaghesh [135] found that improving telemedicine capabilities during the COVID-19 pandemic could reduce the mortality of patients with various diseases and ensure the safety of patients and medical service providers at the same time.

3.4.2. Identification of Research Frontiers

The keywords timeline is shown in Figure 9. Clustering analysis is carried out by using three different algorithms to identify the inner connection of the text data. They were the log-likelihood ratio (LLR), term frequency-inverse document frequency (TF-IDF) and mutual information (MI) [136–140]. In Figure 9, node and connection represent keywords and their relationships. The node size and frequency have a positive correlation. The connection strength between nodes can be used as a quantitative index to reflect the connection between nodes.

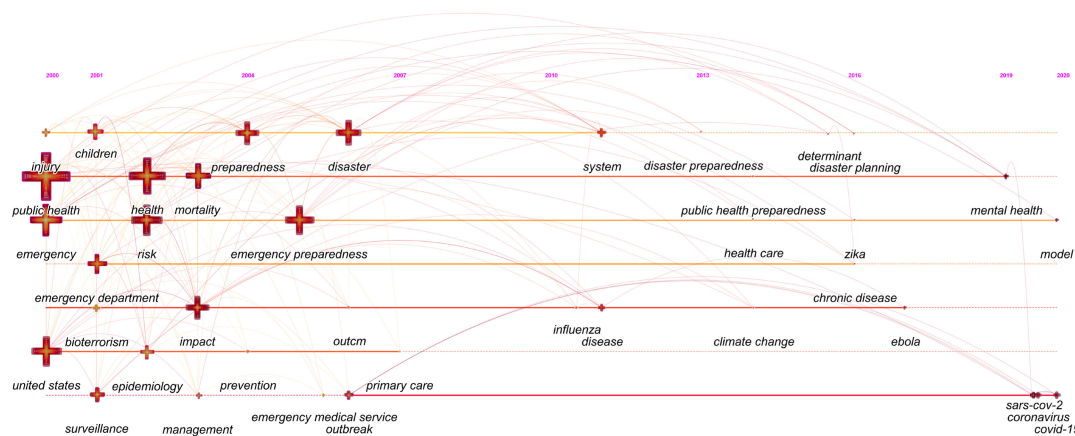


Figure 9. Keywords timeline of public health emergency management studies.

Eight clusters of studies in this field were calculated using CiteSpace, and the cluster labels by LLR, TF-IDF, and MI algorithms are presented in Table 5. We can obtain the centrality of each node by calculation. The centrality can quantify the importance of a node in the map. The larger the centrality is, the more important the node is in the map. The centrality of “emergency (0.29)”, “public health” (0.23), and “health” (0.19) are the highest. The seven timelines in Figure 9 represent different research directions, namely, child prevention, public health incident mortality, public health emergency preparedness, public health emergency management, bioterrorism, basic medical care in the United States, and COVID-19. Since public health emergency management is a research field that covers a wide range of content, there are many connections between the seven timelines, and a substantial number of scholars have combined different research contents or methods for research.

Table 5. Keywords’ clustering labels in public health emergency management studies.

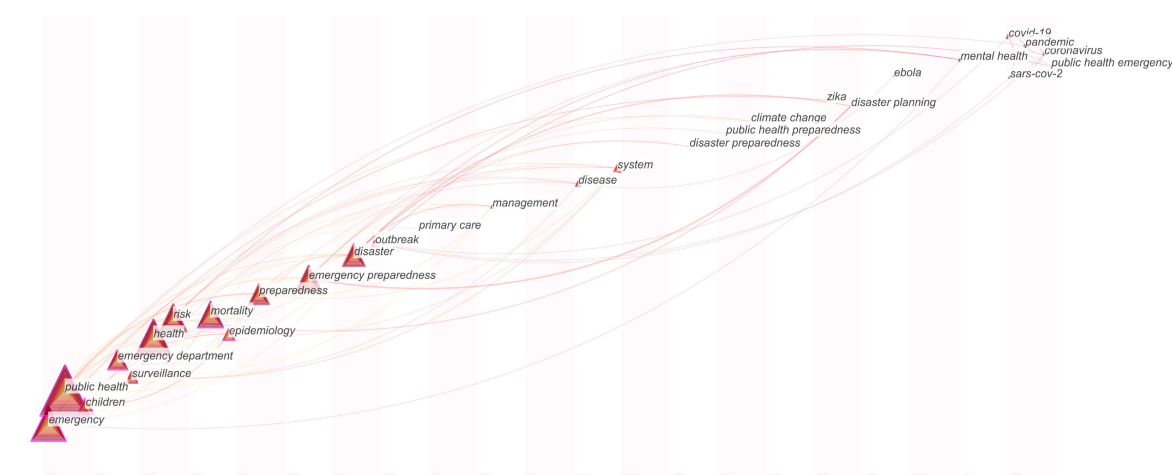
Cluster	Size	Silhouette	Cite Year	Label (TF × IDF)	Label (LLR)	Label (MI)
#0	79	0.652	2008	public health	emergency preparedness	airport
#1	69	0.644	2005	emergency department	emergency department	anti-abortion groups/movement
#2	57	0.627	2005	surveillance	air pollution	adult and children injury
#3	27	0.637	2007	mental health	violence	disaster diplomacy
#4	23	0.759	2008	emergency planning	emergency planning	pollution
#5	21	0.77	2013	coronavirus	COVID-19	outcomes
#6	17	0.777	2007	public health	impact	referral patterns

Table 6 is obtained from burst detection in CiteSpace, and the 15 keywords with the highest burst strength and relevant information are listed below. Burst strength was used to describe the degree of a great increase in the occurrence frequency of a keyword. The higher the burst strength is, the greater the increase in the occurrence frequency of the keyword within a short time. It can be seen that the keywords with high outbreak intensity are constantly changing, and the strongest ones are “Bioterrorism” (17.5), followed by “Ebola” (11.96), “Public Health Preparedness” (10.7), “Health Care” (9.74), and “Influenza” (7.97). “Emergency” is one of the earliest burst times, and “Air Pollution” and “Bioterrorism” have the longest burst time. It can be seen that scholars have long focused on the themes of “air pollution” and “bioterrorism”, and that bioterrorism is no longer the focus of attention in today’s world. “Climate Change” related to “Air Pollution” is a keyword that is undergoing a sudden change. Due to the limitation of calculation and data, the keyword “COVID-19” is not reflected in the table. Combining the previous research shows that “COVID-19” will also become a keyword with great mutation intensity in the future.

Table 6. Top 15 burst strength keywords in public health emergency management studies.

Keywords	Strength	Begin	End	2000–2020
Emergency	6.14	2000	2004	
Air Pollution	5.4	2000	2008	
Bioterrorism	17.5	2001	2009	
Prevention	5.59	2004	2008	
Management	3.25	2006	2009	
Injury	6.18	2008	2012	
Influenza	7.97	2009	2014	
Health Care	9.74	2010	2014	
H1N1	5.25	2011	2013	
Emergency Planning	3.63	2012	2016	
Public Health Preparedness	10.7	2013	2017	
Ebola	11.96	2016	2017	
Surveillance	5.07	2017	2018	
Zika Virus	5.93	2017	2018	
Climate Change	8.3	2018	2020	

CiteSpace's Timezone function is used to calculate and sort the keyword time zone map for public health emergency management. As shown in Figure 10, the earliest keywords are “public health”, “emergency” and “children”, which can be regarded as the core keywords in the field of public health emergency management. The preliminary development stage ended in 2007, and hot keywords, such as “emergency department”, “health”, “mortality” and “emergency preparedness”, appeared successively. After entering the stable development stage in 2008, there were very few hot keywords until 2013. Entering into the rapid development stage in 2014, keywords such as “public health preparedness”, “ebola” and “mental health” appeared. Due to the outbreak of COVID-19 in 2020, the related keywords “COVID-19”, “pandemic”, “coronavirus”, “emergency” and “SARS-CoV-2” also broke out.

**Figure 10.** TimeZone distribution of keywords in public health emergency management studies.

Health is the most basic requirement for human survival, and public health emergency management is an important part of it. Therefore, perfect public health emergency management is of great practical significance. It can be seen that scholars all over the world have conducted research on every link and aspect of public health emergency management and have continuously promoted the progress of public health emergency management. However, in the face of unprecedented large-scale emergencies such as COVID-19, there is still a lack of emergency management capabilities. In the future, the government or public welfare organizations should act as guides and investors to make the research of various types of public health emergencies more constructive and continuous. Through the study of large-scale emergencies that have occurred, on the basis of summarizing experience and lessons, the more severe situation is diligently predicted, key resources, professionals and emergency plans are prepared in advance, and emergencies can be dealt with as expected.

From the above analysis, it can be seen that the research on public health emergency management involved a wide range of fields and was intensively interdisciplinary. The overall knowledge structure can be divided into five main research directions, including emergency preparedness, emergency care, hospital admission, first response and major public health emergencies (see Figure 11). The corresponding knowledge bases and knowledge domains are shown in Figure 11.

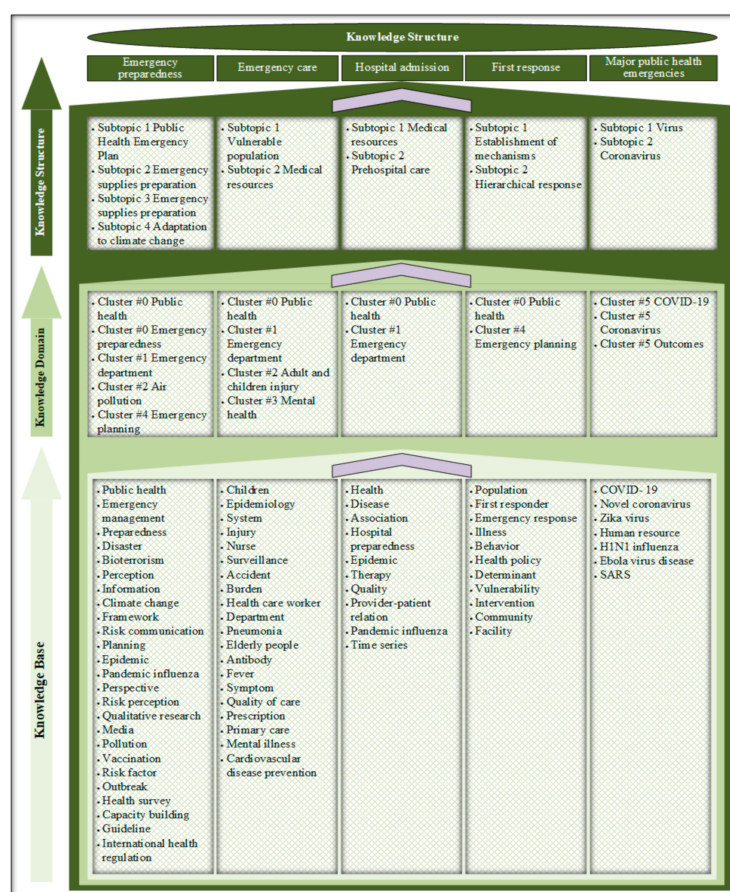


Figure 11. Knowledge structure of public health emergency management.

4. Conclusions

We analyzed the related papers on public health emergency management research in the past 21 years from the Web of Science Core Collection using the bibliometric analysis method. The content covers the distribution of time dimension and space dimension, the analysis of the quantity of publications and co-citation of journals, and the analysis of co-occurrence and clustering of keywords. The conclusions are as follows:

- (1) The development of public health emergency management research is divided into three stages: the preliminary development stage (2000–2007), the stable development stage (2008–2013) and the rapid development stage (2014–2020). The continuous improvement of public health emergency capacity, public health emergency care, child protection in public health systems, and changes in mortality due to public health conditions are the knowledge base of public health emergency management.
- (2) The research on public health emergency management mainly revolves around the Infectious Diseases, Health Policy and Services and General and Internal Medicine disciplines. The main research directions in the current field are child prevention, mortality from public health events, public health emergency preparedness, and COVID-19. At present, a relatively complete theoretical research framework has been formed for the research on public health emergency management.
- (3) Climate change, COVID-19, and related epidemics and coronaviruses are the current research hotspots and frontiers. The government or public welfare organizations should act as guides and investors to strengthen the constructive and forward-looking continuity of research.
- (4) While paying attention to economic development, by optimizing the structure of fiscal expenditures and appropriately expanding the scale of government public health expenditures, a benign interaction between economic development and improvement of people's livelihood can be achieved. At the same time, the United Nations and the World Health Organization should give more help to the construction of primary medical care in some underdeveloped areas.

Author Contributions: Conceptualization, H.L. and H.W. (Han Wang); methodology, K.C., X.L. and H.L.; software, H.W. (Han Wang); validation, H.W. (Han Wang), K.C., X.L. and J.K.; formal analysis, R.H.; investigation, K.C., X.L., H.L., R.H. and H.W. (Han Wang); writing—original draft preparation, H.W. (Han Wang); K.C., X.L. and Y.Q.; writing—review and editing, K.C., X.L. and H.L.; visualization, H.W. (Han Wang) and Y.Q.; supervision, H.L. and H.W. (Haining Wang); funding acquisition, H.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Science and Technology Project of Department of Education of Zhejiang Province (Y202045438), the Zhejiang Provincial Natural Science Foundation of China (LY22E040001), the Key Laboratory of Safety Engineering and Technology Research of Zhejiang Province (202101) and the Fundamental Research Funds for the Provincial Universities of Zhejiang (2020YW55, 2021YW92).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Nelson, C.; Lurie, N.; Wasserman, J.; Zakowski, S. Conceptualizing and defining public health emergency preparedness. *Am. Public Health Assoc.* **2007**, *97*, S9–S11. [[CrossRef](#)] [[PubMed](#)]
2. Zhang, W.; Zu, Z.; Xu, Q.; Xu, Z.; Zheng, T. Analysis of impact of SARS on transportation and telecommunications in China. *Mil. Med. Sci.* **2012**, *36*, 762.
3. Waheed, Y.; Malik, S.; Khan, M.; Najmi, M.H. The world after ebola: An overview of ebola complications, vaccine development, lessons learned, financial losses, and disease preparedness. *Crit. Rev. Eukaryot. Gene Expr.* **2019**, *29*, 77–84. [[CrossRef](#)] [[PubMed](#)]
4. Posid, J.M.; Bruce, S.M.; Guarnizo, J.T.; O'Connor, R.C.; Papagiolas, S.S.; Taylor, M.L. Public health emergencies and responses: What are they, how long do they last, and how many staff does your agency need? *Biosecur. Bioterror.* **2013**, *11*, 271–279. [[CrossRef](#)] [[PubMed](#)]
5. Xu, M.; Li, S.X. Analysis of good practice of public health emergency operations centers. *Asian Pac. J. Trop. Med.* **2015**, *8*, 665–670. [[CrossRef](#)] [[PubMed](#)]
6. Jin, X.T.; Li, J.A.; Song, W.; Zhao, T.Y. The impact of COVID-19 and public health emergencies on consumer purchase of scarce products in China. *Front. Public Health* **2020**, *8*, 10. [[CrossRef](#)] [[PubMed](#)]

7. Arafat, S.M.Y.; Kar, S.K.; Menon, V.; Alradie-Mohamed, A.; Mukherjee, S.; Kaliamoorthy, C.; Kabir, R. Responsible factors of panic buying: An observation from online media reports. *Front. Public Health* **2020**, *8*, 6. [\[CrossRef\]](#)
8. Li, M.; Zhao, T.Y.; Huang, E.S.; Li, J.N. How does a public health emergency motivate people's impulsive consumption? An empirical study during the COVID-19 outbreak in China. *Int. J. Environ. Res. Public Health* **2020**, *17*, 13. [\[CrossRef\]](#)
9. Hu, G.Q.; Rao, K.Q.; Hu, M.; Sur, Z.Q. Preparing for and responding to public health emergencies in China: A focus group study. *J. Public Health Policy* **2007**, *28*, 185–195. [\[CrossRef\]](#)
10. Koenig, K.L. Identify, Isolate, Inform: A 3-pronged approach to management of public health emergencies. *Dis. Med. Public Health Prep.* **2015**, *9*, 86–87. [\[CrossRef\]](#)
11. Bochenek, R.; Grant, M.; Schwartz, B. Enhancing the relevance of incident management systems in public health emergency preparedness: A novel conceptual framework. *Dis. Med. Public Health Prep.* **2015**, *9*, 415–422. [\[CrossRef\]](#)
12. Cao, Y.L.; Shan, J.; Gong, Z.Z.; Kuang, J.Q.; Gao, Y. Status and challenges of public health emergency management in China related to COVID-19. *Front. Public Health* **2020**, *8*, 6. [\[CrossRef\]](#)
13. Wimsatt, M.A. Cross-Jurisdictional sharing for emergency management-related public health: Exploring the experiences of tribes and counties in California. *Front. Public Health* **2017**, *5*, 11. [\[CrossRef\]](#)
14. Hu, J.X.; Chen, C.; Kuai, T.T. Improvement of emergency management mechanism of public health crisis in rural China: A review article. *Iran. J. Public Health* **2018**, *47*, 156–165.
15. Grier, N.L.; Homish, G.G.; Rowe, D.W.; Barrick, C. Promoting information sharing for multijurisdictional public health emergency preparedness. *J. Public Health Manag. Pract.* **2011**, *17*, 84–89. [\[CrossRef\]](#)
16. Wang, X.Z.; Liu, Y.; Zhang, H.; Ma, Q.J.; Cao, Z.D. Public health emergency management and multi-source data technology in China. *Intell. Autom. Soft Comput.* **2018**, *24*, 89–96. [\[CrossRef\]](#)
17. Reeder, B.; Turner, A.M. Scenario-based design: A method for connecting information system design with public health operations and emergency management. *J. Biomed. Inform.* **2011**, *44*, 978–988. [\[CrossRef\]](#)
18. Merigo, J.M.; Cancino, C.A.; Coronado, F.; Urbano, D. Academic research in innovation: A country analysis. *Scientometrics* **2016**, *108*, 559–593. [\[CrossRef\]](#)
19. Zhu, J.; Hua, W.J. Visualizing the knowledge domain of sustainable development research between 1987 and 2015: A bibliometric analysis. *Scientometrics* **2017**, *110*, 893–914. [\[CrossRef\]](#)
20. Zibareva, I.V.; Vedyagin, A.A.; Bukhtiyarov, V.I. Nanocatalysis: A bibliometric analysis. *Kinet. Catal.* **2014**, *55*, 1–11. [\[CrossRef\]](#)
21. Kokol, P. Cybernetics: A Bibliometric Analysis Snapshot. *Cybern. Syst.* **2018**, *49*, 95–102. [\[CrossRef\]](#)
22. Liao, H.C.; Tang, M.; Luo, L.; Li, C.Y.; Chiclana, F.; Zeng, X.J. A bibliometric analysis and visualization of medical big data research. *Sustainability* **2018**, *10*, 18. [\[CrossRef\]](#)
23. Van Nunen, K.; Li, J.; Reniers, G.; Ponnet, K. Bibliometric analysis of safety culture research. *Saf. Sci.* **2018**, *108*, 248–258. [\[CrossRef\]](#)
24. Zou, X.; Yue, W.L.; Vu, H.L. Visualization and analysis of mapping knowledge domain of road safety studies. *Accid. Anal. Prev.* **2018**, *118*, 131–145. [\[CrossRef\]](#)
25. Li, J.; Goerlandt, F.; Reniers, G. Mapping process safety: A retrospective scientometric analysis of three process safety related journals (1999–2018). *J. Loss Prev. Process Ind.* **2020**, *65*, 104141. [\[CrossRef\]](#)
26. Liu, H.; Chen, H.L.; Hong, R.; Liu, H.G.; You, W.J. Mapping knowledge structure and research trends of emergency evacuation studies. *Saf. Sci.* **2020**, *121*, 348–361. [\[CrossRef\]](#)
27. Goerlandt, F.; Li, J.; Reniers, G. The Landscape of Risk Communication Research: A Scientometric Analysis. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3255. [\[CrossRef\]](#)
28. Liu, H.; Hong, R.; Xiang, C.; Lv, C.; Li, H. Visualization and analysis of mapping knowledge domains for spontaneous combustion studies. *Fuel* **2020**, *262*, 116598. [\[CrossRef\]](#)
29. Lang, Z.H.; Liu, H.; Meng, N.; Wang, H.N.; Wang, H.; Kong, F.Y. Mapping the knowledge domains of research on fire safety—An informetrics analysis. *Tunn. Undergr. Space Technol.* **2021**, *108*, 103676. [\[CrossRef\]](#)
30. Goerlandt, F.; Li, J.; Reniers, G.; Boustras, G. Safety science: A bibliographic synopsis of publications in 2020. *Saf. Sci.* **2021**, *139*, 105242. [\[CrossRef\]](#)
31. Goerlandt, F.; Li, J.; Reniers, G. Virtual Special Issue: Mapping Safety Science—Reviewing Safety Research. *Saf. Sci.* **2021**, *140*, 105278. [\[CrossRef\]](#)
32. Gou, X.; Liu, H.; Qiang, Y.; Lang, Z.; Wang, H.; Ye, D.; Wang, Z.; Wang, H. In-depth analysis on safety and security research based on system dynamics: A bibliometric mapping approach-based study. *Saf. Sci.* **2022**, *147*, 105617. [\[CrossRef\]](#)
33. Van Eck, N.J.; Waltman, L. VOS: A new method for visualizing similarities between objects. In *Advances in Data Analysis*; Decker, R., Lenz, H.J., Eds.; Springer: Berlin, Germany, 2007; pp. 299–306.
34. Van Eck, N.J.; Waltman, L. Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics* **2010**, *84*, 523–538. [\[CrossRef\]](#) [\[PubMed\]](#)
35. Chen, C. CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. *J. Am. Soc. Inf. Sci. Technol.* **2006**, *57*, 359–377. [\[CrossRef\]](#)
36. Chen, C.; Paul, R.J. Visualizing a knowledge domain's intellectual structure. *Computer* **2001**, *34*, 65–71. [\[CrossRef\]](#)
37. Chen, C.; Rada, R. Interacting with hypertext: A meta-analysis of experimental studies. *Hum. Interact.* **1996**, *11*, 125–156. [\[CrossRef\]](#)

38. Chen, C.; Hu, Z.; Liu, S.; Tseng, H. Emerging trends in regenerative medicine: A scientometric analysis in CiteSpace. *Expert Opin. Biol. Ther.* **2012**, *12*, 593–608. [\[CrossRef\]](#) [\[PubMed\]](#)
39. Arnon, S.S.; Schechter, R.; Inglesby, T.V.; Henderson, D.A.; Bartlett, J.G.; Ascher, M.S.; Eitzen, E.; Fine, A.D.; Hauer, J.; Lillibridge, S.; et al. Botulinum toxin as a biological weapon: Medical and public health management. *JAMA* **2001**, *285*, 1059–1070. [\[CrossRef\]](#)
40. Dennis, D.T.; Inglesby, T.V.; Henderson, D.A.; Bartlett, J.G.; Ascher, M.S.; Eitzen, E.; Fine, A.D.; Friedlander, A.M.; Hauer, J.; Layton, M.; et al. Tularemia as a biological weapon: Medical and public health management. *JAMA* **2001**, *285*, 2763–2773. [\[CrossRef\]](#)
41. Inglesby, T.V.; Dennis, D.T.; Henderson, D.A.; Bartlett, J.G.; Ascher, M.S.; Eitzen, E.; Fine, A.D.; Friedlander, A.M.; Hauer, J.; Koerner, J.F.; et al. Plague as a biological weapon: Medical and public health management. *JAMA* **2000**, *283*, 2281–2290. [\[CrossRef\]](#)
42. Borio, L.; Inglesby, T.; Peters, C.J.; Schmaljohn, A.L.; Hughes, J.M.; Jahrling, P.B.; Ksiazek, T.; Johnson, K.M.; Meyerhoff, A.; O'Toole, T.; et al. Hemorrhagic fever viruses as biological weapons: Medical and public health management. *JAMA* **2002**, *287*, 2391–2405. [\[CrossRef\]](#)
43. Keim, M.E. Building human resilience: The role of public health preparedness and response as an adaptation to climate change. *Am. J. Prev. Med.* **2008**, *35*, 508–516. [\[CrossRef\]](#)
44. Subbarao, I.; Lyznicki, J.M.; Hsu, E.B.; Gebbie, K.M.; Markenson, D.; Barzansky, B.; Armstrong, J.H.; Cassimatis, E.G.; Coule, P.L.; Dallas, C.E.; et al. A consensus-based educational framework and competency set for the discipline of disaster medicine and public health preparedness. *Disaster Med. Public Health Prep.* **2008**, *2*, 57–68. [\[CrossRef\]](#) [\[PubMed\]](#)
45. Hutchins, S.S.; Truman, B.I.; Merlin, T.L.; Redd, S.C. Protecting vulnerable populations from pandemic influenza in the United States: A strategic imperative. *Am. J. Public Health* **2009**, *99*, S243–S248. [\[CrossRef\]](#)
46. Wray, R.J.; Becker, S.M.; Henderson, N.; Glik, D.; Jupka, K.; Middleton, S.; Henderson, C.; Drury, A.; Mitchell, E.W. Communicating with the public about emerging health threats: Lessons from the pre-event message development project. *Am. J. Public Health* **2008**, *98*, 2214–2222. [\[CrossRef\]](#)
47. Khan, A.S.; Fleischauer, A.; Casani, J.; Groseclose, S.L. The next public health revolution: Public health information fusion and social networks. *Am. J. Public Health* **2010**, *100*, 1237–1242. [\[CrossRef\]](#)
48. Taylor, C.A.; Bell, J.M.; Breiding, M.J.; Xu, L. Traumatic brain injury-related emergency department visits, hospitalizations, and deaths—United States, 2007 and 2013. *MMWR Surveill. Summ.* **2017**, *66*, 1–16. [\[CrossRef\]](#)
49. Coronado, V.G.; McGuire, L.C.; Sarmiento, K.; Bell, J.; Lionbarger, M.R.; Jones, C.D.; Geller, A.I.; Khoury, N.; Xu, L. Trends in traumatic brain injury in the US and the public health response: 1995–2009. *J. Saf. Res.* **2012**, *43*, 299–307. [\[CrossRef\]](#)
50. De Perio, M.A.; Dowell, C.H.; Delaney, L.J.; Radonovich, L.J.; Kuhar, D.T.; Gupta, N.; Patel, A.; Pillai, S.K.; D'Alessandro, M. Strategies for optimizing the supply of N95 filtering facepiece respirators during the coronavirus disease 2019 (COVID-19) pandemic. *Disaster Med. Public Health Prep.* **2020**, *14*, 658–669. [\[CrossRef\]](#)
51. Koonin, L.M.; Pillai, S.; Kahn, E.B.; Moulia, D.; Patel, A. Strategies to inform allocation of stockpiled ventilators to healthcare facilities during a pandemic. *Health Secur.* **2020**, *18*, 69–74. [\[CrossRef\]](#)
52. Dirlikov, E.; Fechter-Leggett, E.; Thorne, S.L.; Worrell, C.M.; Smith-Grant, J.C.; Chang, J.; Oster, A.M.; Bjork, A.; Young, S.; Perez, A.U.; et al. CDC Deployments to state, tribal, local, and territorial health departments for COVID-19 emergency public health response—United States, January 21–July 25, 2020. *Morb. Mortal. Wkly. Rep.* **2020**, *69*, 1398. [\[CrossRef\]](#) [\[PubMed\]](#)
53. Rhodes, T.; Singer, M.; Bourgois, P.; Friedman, S.R.; Strathdee, S.A. The social structural production of HIV risk among injecting drug users. *Soc. Sci. Med.* **2005**, *61*, 1026–1044. [\[CrossRef\]](#) [\[PubMed\]](#)
54. Tong, E.K.; Strouse, R.; Hall, J.; Kovac, M.; Schroeder, S.A. National survey of US health professionals' smoking prevalence, cessation practices, and beliefs. *Nicotine Tob. Res.* **2010**, *12*, 724–733. [\[CrossRef\]](#) [\[PubMed\]](#)
55. Malone, R.E. Tobacco endgames: What they are and are not, issues for tobacco control strategic planning and a possible US scenario. *Tob. Control* **2013**, *22*, i42–i44. [\[CrossRef\]](#)
56. Kuntsche, E.; Kuntsche, S.; Thrul, J.; Gmel, G. Binge drinking: Health impact, prevalence, correlates and interventions. *Psychol. Health* **2017**, *32*, 976–1017. [\[CrossRef\]](#)
57. Smith-Bernardin, S.; Schneidermann, M. Safe sobering: San Francisco's approach to chronic public inebriation. *J. Health Care Poor Underserved* **2012**, *23*, 265–270. [\[CrossRef\]](#)
58. Martinez, A.N.; Bluthenthal, R.N.; Lorvick, J.; Anderson, R.; Flynn, N.; Kral, A.H. The impact of legalizing syringe exchange programs on arrests among injection drug users in California. *J. Urban Health* **2007**, *84*, 423–435. [\[CrossRef\]](#)
59. Enteen, L.; Bauer, J.; McLean, R.; Wheeler, E.; Huriaux, E.; Kral, A.H.; Bamberger, J.D. Overdose prevention and naloxone prescription for opioid users in San Francisco. *J. Urban Health* **2010**, *87*, 931–941. [\[CrossRef\]](#)
60. Banta-Green, C.J.; Beletsky, L.; Schoeppe, J.A.; Coffin, P.O.; Kuszler, P.C. Police officers' and paramedics' experiences with overdose and their knowledge and opinions of Washington State's drug overdose–naloxone–Good Samaritan law. *J. Urban Health* **2013**, *90*, 1102–1111. [\[CrossRef\]](#)
61. Moss, W.J.; Ramakrishnan, M.; Storms, D.; Henderson Siegle, A.; Weiss, W.M.; Lejnev, I.; Muhe, L. Child health in complex emergencies. *Bull. World Health Organ.* **2006**, *84*, 58–64. [\[CrossRef\]](#)
62. Rivara, F.P.; Koepsell, T.D.; Wang, J.; Temkin, N.; Dorsch, A.; Vavilala, M.S.; Durbin, D.; Jaffe, K.M. Incidence of disability among children 12 months after traumatic brain injury. *Am. J. Public Health* **2012**, *102*, 2074–2079. [\[CrossRef\]](#)
63. Zahran, H.S.; Bailey, C.M.; Damon, S.A.; Garbe, P.L.; Breyse, P.N. Vital signs: Asthma in children—United States, 2001–2016. *Morb. Mortal. Wkly. Rep.* **2018**, *67*, 149. [\[CrossRef\]](#)

64. Anderson, P.; Petrino, R.; Halpern, P.; Tintinalli, J. The globalization of emergency medicine and its importance for public health. *Bull. World Health Organ.* **2006**, *84*, 835–839. [\[CrossRef\]](#)
65. Migliori, G.B.; Dheda, K.; Centis, R.; Mwaba, P.; Bates, M.; O'Grady, J.; Hoelscher, M.; Zumla, A. Review of multidrug-resistant and extensively drug-resistant TB: Global perspectives with a focus on sub-Saharan Africa. *Trop. Med. Int. Health* **2010**, *15*, 1052–1066. [\[CrossRef\]](#)
66. Iddriss, A.; Shivute, N.; Bickler, S.; Cole-Ceesay, R.; Jargo, B.; Abdullah, F.; Cherian, M. Emergency, anaesthetic and essential surgical capacity in the Gambia. *Bull. World Health Organ.* **2011**, *89*, 565–572. [\[CrossRef\]](#)
67. Croner, C.M. Public health, GIS, and the Internet. *Annu. Rev. Public Health* **2003**, *24*, 57–82. [\[CrossRef\]](#)
68. Jhung, M.A.; Budnitz, D.S.; Mendelsohn, A.B.; Weidenbach, K.N.; Nelson, T.D.; Pollock, D.A. Evaluation and overview of the national electronic injury surveillance system-cooperative adverse drug event surveillance project (NEISS-CADES). *Med. Care* **2007**, *45*, S96–S102. [\[CrossRef\]](#)
69. Sutton, J.; Rivera, Y.; Sell, T.K.; Moran, M.B.; Gayle, D.B.; Schoch-Spana, M.; Stern, E.K.; Turetsky, D. Longitudinal risk communication: A research agenda for communicating in a pandemic. *Health Secur.* **2021**, *19*, 370–378. [\[CrossRef\]](#)
70. Cabañas, J.G.; Williams, J.G.; Gallagher, J.M.; Brice, J.H. COVID-19 pandemic: The role of EMS physicians in a community response effort. *Prehospital Emerg. Care* **2020**, *25*, 8–15. [\[CrossRef\]](#)
71. Edejer, T.T.-T.; Hanssen, O.; Mirelman, A.; Verboom, P.; Lolong, G.; Watson, O.J.; Boulanger, L.L.; Soucat, A. Projected health-care resource needs for an effective response to COVID-19 in 73 low-income and middle-income countries: A modelling study. *Lancet Glob. Health* **2020**, *8*, e1372–e1379. [\[CrossRef\]](#)
72. Winters, M.; Jalloh, M.F.; Sengeh, P.; Jalloh, M.B.; Zeebari, Z.; Nordenstedt, H. Risk perception during the 2014–2015 Ebola outbreak in Sierra Leone. *BMC Public Health* **2020**, *20*, 1539. [\[CrossRef\]](#) [\[PubMed\]](#)
73. Knowlton, K.; Rotkin-Ellman, M.; King, G.; Margolis, H.G.; Smith, D.; Solomon, G.; Trent, R.; English, P. The 2006 California heat wave: Impacts on hospitalizations and emergency department visits. *Environ. Health Perspect.* **2009**, *117*, 61–67. [\[CrossRef\]](#) [\[PubMed\]](#)
74. Kovats, R.S.; Hajat, S.; Wilkinson, P. Contrasting patterns of mortality and hospital admissions during hot weather and heat waves in Greater London, UK. *Occup. Environ. Med.* **2004**, *61*, 893–898. [\[CrossRef\]](#) [\[PubMed\]](#)
75. Semenza, J.C.; Ploubidis, G.B.; George, L.A. Climate change and climate variability: Personal motivation for adaptation and mitigation. *Environ. Health* **2011**, *10*, 46. [\[CrossRef\]](#)
76. Meng, Y.Y.; Rull, R.P.; Wilhelm, M.; Lombardi, C.; Balmes, J.; Ritz, B. Outdoor air pollution and uncontrolled asthma in the San Joaquin Valley, California. *J. Epidemiol. Community Health* **2010**, *64*, 142–147. [\[CrossRef\]](#)
77. MacIntosh, D.L.; Minegishi, T.; Kaufman, M.; Baker, B.J.; Allen, J.G.; Levy, J.I.; Myatt, T.A. The benefits of whole-house in-duct air cleaning in reducing exposures to fine particulate matter of outdoor origin: A modeling analysis. *J. Expo. Sci. Environ. Epidemiol.* **2010**, *20*, 213–224. [\[CrossRef\]](#)
78. Wilhelm, M.; Meng, Y.Y.; Rull, R.P.; English, P.; Balmes, J.; Ritz, B. Environmental public health tracking of childhood asthma using California health interview survey, traffic, and outdoor air pollution data. *Environ. Health Perspect.* **2008**, *116*, 1254–1260. [\[CrossRef\]](#)
79. Gurgel, A.D.M.; Santos, C.C.S.D.; Alves, K.P.D.S.; Araujo, J.M.D.; Leal, V.S. Government strategies to ensure the human right to adequate and healthy food facing the COVID-19 pandemic in Brazil. *Ciência Saúde Coletiva* **2020**, *25*, 4945–4956. [\[CrossRef\]](#)
80. Lee, A.C. Local perspectives on humanitarian aid in Sri Lanka after the tsunami. *Public Health* **2008**, *122*, 1410–1417. [\[CrossRef\]](#)
81. O'Malley, P.; Rainford, J.; Thompson, A. Transparency during public health emergencies: From rhetoric to reality. *Bull. World Health Organ.* **2009**, *87*, 614–618. [\[CrossRef\]](#)
82. Langat, P.; Pisartchik, D.; Silva, D.; Bernard, C.; Olsen, K.; Smith, M.; Sahni, S.; Upshur, R. Is there a duty to share? Ethics of sharing research data in the context of public health emergencies. *Public Health Ethics* **2011**, *4*, 4–11. [\[CrossRef\]](#)
83. Li, H.O.Y.; Bailey, A.; Huynh, D.; Chan, J. YouTube as a source of information on COVID-19: A pandemic of misinformation? *BMJ Glob. Health* **2020**, *5*, e002604. [\[CrossRef\]](#) [\[PubMed\]](#)
84. Garritty, C.M.; Norris, S.L.; Moher, D. Developing WHO rapid advice guidelines in the setting of a public health emergency. *J. Clin. Epidemiol.* **2017**, *82*, 47–60. [\[CrossRef\]](#)
85. Burkle, F.M.; Hsu, E.B.; Loehr, M.; Christian, M.D.; Markenson, D.; Robinson, L.; Archer, F.L. Definition and functions of health unified command and emergency operations centers for large-scale bioevent disasters within the existing ICS. *Disaster Med. Public Health Prep.* **2007**, *1*, 135–141. [\[CrossRef\]](#) [\[PubMed\]](#)
86. Khan, Y.; O'Sullivan, T.; Brown, A.; Tracey, S.; Gibson, J.; Généreux, M.; Henry, B.; Schwartz, B. Public health emergency preparedness: A framework to promote resilience. *BMC Public Health* **2018**, *18*, 1344. [\[CrossRef\]](#) [\[PubMed\]](#)
87. Small, H. Co-citation in the scientific literature: A new measure of the relationship between two documents. *J. Am. Soc. Inf. Sci.* **1973**, *24*, 265–269. [\[CrossRef\]](#)
88. Liu, H.; Xie, Y.; Liu, Y.; Nie, R.; Li, X. Mapping the knowledge structure and research evolution of urban rail transit safety studies. *IEEE Access* **2019**, *7*, 186437–186455. [\[CrossRef\]](#)
89. Hong, R.; Liu, H.; Xiang, C.; Song, Y.; Lv, C. Visualization and analysis of mapping knowledge domain of oxidation studies of sulfide ores. *Environ. Sci. Pollut. Res.* **2020**, *27*, 5809–5824. [\[CrossRef\]](#)

90. Covello, V.T.; Peters, R.G.; Wojtecki, J.G.; Hyde, R.C. Risk communication, the West Nile virus epidemic, and bioterrorism: Responding to the communication challenges posed by the intentional or unintentional release of a pathogen in an urban setting. *J. Urban Health* **2001**, *78*, 382–391. [\[CrossRef\]](#)
91. Qureshi, K.; Gershon, R.R.M.; Sherman, M.F.; Straub, T.; Gebbie, E.; McCollum, M.; Erwin, M.J.; Morse, S.S. Health care workers' ability and willingness to report to duty during catastrophic disasters. *J. Urban Health* **2005**, *82*, 378–388. [\[CrossRef\]](#)
92. Glik, D.C. Risk communication for public health emergencies. *Annu. Rev. Public Health* **2007**, *28*, 33–54. [\[CrossRef\]](#)
93. Norris, F.H.; Stevens, S.P.; Pfefferbaum, B.; Wyche, K.F.; Pfefferbaum, R.L. Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *Am. J. Community Psychol.* **2008**, *41*, 127–150. [\[CrossRef\]](#)
94. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [\[CrossRef\]](#)
95. Moher, D.; Liberati, A.; Tetzlaff, J.; Altman, D.G. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Int. J. Surg.* **2010**, *8*, 336–341. [\[CrossRef\]](#)
96. Andersen, R.M. Revisiting the behavioral model and access to medical care: Does it matter? *J. Health Soc. Behav.* **1995**, *36*, 1–10. [\[CrossRef\]](#)
97. Semenza, J.C.; Rubin, C.H.; Falter, K.H.; Selanikio, J.D.; Flanders, W.D.; Howe, H.L.; Wilhelm, J.L. Heat-related deaths during the July 1995 heat wave in Chicago. *N. Engl. J. Med.* **1996**, *335*, 84–90. [\[CrossRef\]](#)
98. Anderson, B.G.; Bell, M.L. Weather-related mortality how heat, cold, and heat waves affect mortality in the United States. *Epidemiology* **2009**, *20*, 205–213. [\[CrossRef\]](#)
99. Huang, C.L.; Wang, Y.M.; Li, X.W.; Ren, L.L.; Zhao, J.P.; Hu, Y.; Zhang, L.; Fan, G.H.; Xu, J.Y.; Gu, X.Y.; et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* **2020**, *395*, 497–506. [\[CrossRef\]](#)
100. Zhu, N.; Zhang, D.Y.; Wang, W.L.; Li, X.W.; Yang, B.; Song, J.D.; Zhao, X.; Huang, B.Y.; Shi, W.F.; Lu, R.J.; et al. A novel coronavirus from patients with pneumonia in China, 2019. *N. Engl. J. Med.* **2020**, *382*, 727–733. [\[CrossRef\]](#)
101. Chen, N.S.; Zhou, M.; Dong, X.; Qu, J.M.; Gong, F.Y.; Han, Y.; Qiu, Y.; Wang, J.L.; Liu, Y.; Wei, Y.; et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. *Lancet* **2020**, *395*, 507–513. [\[CrossRef\]](#)
102. Slovic, P. Perception of risk. *Science* **1987**, *236*, 280–285. [\[CrossRef\]](#) [\[PubMed\]](#)
103. Smith, A.H.; Lingas, E.O.; Rahman, M. Contamination of drinking-water by arsenic in Bangladesh: A public health emergency. *Bull. World Health Organ.* **2000**, *78*, 1093–1103. [\[PubMed\]](#)
104. Hanna-Attisha, M.; LaChance, J.; Sadler, R.C.; Schnepf, A.C. Elevated blood lead levels in children associated with the flint drinking water crisis: A spatial analysis of risk and public health response. *Am. J. Public Health* **2016**, *106*, 283–290. [\[CrossRef\]](#) [\[PubMed\]](#)
105. Wang, C.Y.; Pan, R.Y.; Wan, X.Y.; Tan, Y.L.; Xu, L.K.; Ho, C.S.; Ho, R.C. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int. J. Environ. Res. Public Health* **2020**, *17*, 25. [\[CrossRef\]](#)
106. Liu, Y.; Gayle, A.A.; Wilder-Smith, A.; Rocklöv, J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. *J. Travel Med.* **2020**, *27*, 4. [\[CrossRef\]](#)
107. Rodríguez-Morales, A.J.; Cardona-Ospina, J.A.; Gutiérrez-Ocampo, E.; Villamizar-Peña, R.; Holguín-Rivera, Y.; Escalera-Antezana, J.P.; Alvarado-Arnez, L.E.; Bonilla-Aldana, D.K.; Franco-Paredes, C.; Henao-Martínez, A.F.; et al. Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-analysis. *Travel Med. Infect. Dis.* **2020**, *34*, 101623. [\[CrossRef\]](#)
108. Coker, A.L.; Smith, P.H.; McKeown, R.E.; King, M.J. Frequency and correlates of intimate partner violence by type: Physical, sexual, and psychological battering. *Am. J. Public Health* **2000**, *90*, 553–559.
109. Bhattacharya, S.; Campbell, D.M.; Liston, W.A.; Bhattacharya, S. Effect of Body Mass Index on pregnancy outcomes in nulliparous women delivering singleton babies. *BMC Public Health* **2007**, *7*, 8. [\[CrossRef\]](#)
110. Aryadoust, V.; Tan, H.; Ng, L. A Scientometric review of rasch measurement: The rise and progress of a specialty. *Front. Psychol.* **2019**, *10*, 2197. [\[CrossRef\]](#)
111. Lang, Z.H.; Wang, D.; Liu, H.; Gou, X. Mapping the knowledge domains of research on corrosion of petrochemical equipment: An informetrics analysis-based study. *Eng. Fail. Anal.* **2021**, *129*, 105716. [\[CrossRef\]](#)
112. Pestronk, R.M. Why just prepare for emergencies when full use is possible? *J. Public Health Manag. Pract.* **2005**, *11*, 298–300. [\[CrossRef\]](#)
113. Nelson, C.; Lurie, N.; Wasserman, J. Assessing public health emergency preparedness: Concepts, tools, and challenges. *Annu. Rev. Public Health* **2007**, *28*, 1–18. [\[CrossRef\]](#)
114. Bardosh, K.L.; de Vries, D.H.; Abramowitz, S.; Thorlie, A.; Cremers, L.; Kinsman, J.; Stellmach, D. Integrating the social sciences in epidemic preparedness and response: A strategic framework to strengthen capacities and improve Global Health security. *Global. Health* **2020**, *16*, 18. [\[CrossRef\]](#)
115. Sun, D.D.; Yang, D.L.; Li, Y.F.; Zhou, J.; Wang, W.Q.; Wang, Q.L.; Lin, N.; Cao, A.L.; Wang, H.C.; Zhang, Q.Y. Psychological impact of 2019 novel coronavirus (2019-nCoV) outbreak in health workers in China. *Epidemiol. Infect.* **2020**, *148*, 6. [\[CrossRef\]](#)
116. Wachocka, M.; Pattavina, F.; Palluzzi, V.; Cerabona, V.; Laurenti, P. Health professionals of prevention in Italy: The value of expertise during COVID-19 pandemic. *Front. Public Health* **2020**, *8*, 3. [\[CrossRef\]](#)
117. Yong, L.M.O.; Xin, X.H.; Wee, J.M.L.; Poopalalingam, R.; Kwek, K.Y.C.; Thumboo, J. Perception survey of crisis and emergency risk communication in an acute hospital in the management of COVID-19 pandemic in Singapore. *BMC Public Health* **2020**, *20*, 12.

118. Fernandes, E.G.; Santos, J.D.; Sato, H.K. Outbreak investigation in cargo ship in times of COVID-19 crisis, Port of Santos, Brazil. *Rev. Saude Publica* **2020**, *54*, 4. [[CrossRef](#)]
119. Grandvuillemin, A.; Drici, M.D.; Jonville-Bera, A.P.; Micallef, J.; Montastruc, J.L.; French Pharmacovigilance, N. French pharmacovigilance public system and COVID-19 pandemic. *Drug Saf.* **2021**, *44*, 405–408. [[CrossRef](#)]
120. He, R.X.; Zhang, J.; Mao, Y.; Degomme, O.; Zhang, W.H. Preparedness and responses faced during the COVID-19 pandemic in Belgium: An observational study and using the national open data. *Int. J. Environ. Res. Public Health* **2020**, *17*, 14. [[CrossRef](#)]
121. Ortega, P.; Martinez, G.; Diamond, L. Language and Health Equity during COVID-19: Lessons and Opportunities. *J. Health Care Poor Underserved* **2020**, *31*, 1530–1535. [[CrossRef](#)]
122. Molyneux, E.; Ahmad, S.; Robertson, A. Improved triage and emergency care for children reduces inpatient mortality in a resource-constrained setting. *Bull. World Health Organ.* **2006**, *84*, 314–319. [[CrossRef](#)] [[PubMed](#)]
123. Whetten, K.; Leserman, J.; Whetten, R.; Ostermann, J.; Thielman, N.; Swartz, M.; Stangl, D. Exploring lack of trust in care providers and the government as a barrier to health service use. *Am. J. Public Health* **2006**, *96*, 716–721. [[CrossRef](#)] [[PubMed](#)]
124. Cormier, S.; Wargo, M.; Winslow, W.J.D. Transforming health care coalitions from hospitals to whole of community: Lessons learned from two large health care organizations. *Disaster Med. Public Health Prep.* **2015**, *9*, 712–716. [[CrossRef](#)] [[PubMed](#)]
125. Barranco, R.; Messina, C.; Bonsignore, A.; Cattrini, C.; Ventura, F. Medical liability in cancer care during COVID-19 pandemic: Heroes or guilty? *Front. Public Health* **2020**, *8*, 5. [[CrossRef](#)] [[PubMed](#)]
126. Devillanova, C.; Colombo, C.; Garofolo, P.; Spada, A. Health care for undocumented immigrants during the early phase of the COVID-19 pandemic in Lombardy, Italy. *Eur. J. Public Health* **2020**, *30*, 1186–1188. [[CrossRef](#)] [[PubMed](#)]
127. Dziuban, E.J.; Peacock, G.; Frogel, M.J. A child's health is the public's health: Progress and gaps in addressing pediatric needs in public health emergencies. *Am. J. Public Health* **2017**, *107*, S134–S137. [[CrossRef](#)]
128. Bartenfeld, M.T.; Peacock, G.; Giese, S.E. Public health emergency planning for children in chemical, biological, radiological, and nuclear (CBRN) disasters. *Biosecur. Bioterror.* **2014**, *12*, 201–207. [[CrossRef](#)]
129. Shah, M.N.; Cushman, J.T.; Davis, C.O.; Bazarian, J.J.; Auinger, P.; Friedman, B. The epidemiology of emergency medical services use by children: An analysis of the national hospital ambulatory medical care survey. *Prehosp. Emerg. Care* **2008**, *12*, 269–276. [[CrossRef](#)]
130. Krass, P.; Zimbrick-Rogers, C.; Iheagwara, C.; Ford, C.A.; Calderoni, M. COVID-19 outbreak among adolescents at an inpatient behavioral health hospital. *J. Adolesc. Health* **2020**, *67*, 612–614. [[CrossRef](#)]
131. Nicholson, E.; McDonnell, T.; Conlon, C.; Barrett, M.; Cummins, F.; Hensey, C.; McAuliffe, E. Parental hesitancy and concerns around accessing paediatric unscheduled healthcare during COVID-19: A cross-sectional survey. *Int. J. Environ. Res. Public Health* **2020**, *17*, 19. [[CrossRef](#)]
132. Knox, K.L.; Conwell, Y.; Caine, E.D. If suicide is a public health problem, what are we doing to prevent it? *Am. J. Public Health* **2004**, *94*, 37–45. [[CrossRef](#)]
133. Zanobetti, A.; Schwartz, J. Race, gender, and social status as modifiers of the effects of PM10 on mortality. *J. Occup. Environ. Med.* **2000**, *42*, 469–474. [[CrossRef](#)]
134. Wang, X.; Li, X.C.; Shang, Y.; Wang, J.W.; Zhang, X.N.; Su, D.J.; Zhao, S.; Wang, Q.; Liu, L.; Li, Y.P.; et al. Ratios of neutrophil-to-lymphocyte and platelet-to-lymphocyte predict all-cause mortality in inpatients with coronavirus disease 2019 (COVID-19): A retrospective cohort study in a single medical centre. *Epidemiol. Infect.* **2020**, *148*, 8. [[CrossRef](#)]
135. Monaghesh, E.; Hajizadeh, A. The role of telehealth during COVID-19 outbreak: A systematic review based on current evidence. *BMC Public Health* **2020**, *20*, 9. [[CrossRef](#)]
136. Wang, H.; Liu, H.; Yao, J.Y.; Ye, D.; Lang, Z.; Glowacz, A. Mapping the knowledge domains of new energy vehicle safety: Informetrics analysis-based studies. *J. Energy Storage* **2021**, *35*, 102275. [[CrossRef](#)]
137. Liu, H.; Li, Y.F.; Hong, R.; Li, Z.M.; Li, M.; Pan, W.; Glowacz, A.; He, H. Knowledge graph analysis and visualization of research trends on driver behavior. *J. Intell. Fuzzy Syst.* **2020**, *38*, 495–511. [[CrossRef](#)]
138. Zhao, X. A scientometric review of global BIM research: Analysis and visualization. *Autom. Constr.* **2017**, *80*, 37–47. [[CrossRef](#)]
139. Liu, H.; Yu, Z.; Chen, C.; Jin, K.; Yang, C. Visualization and Bibliometric Analysis of Research Trends on Human Fatigue Assessment. *J. Med. Syst.* **2018**, *42*, 179. [[CrossRef](#)]
140. Qiang, Y.J.; Tao, X.W.; Gou, X.Q.; Lang, Z.H.; Liu, H. Towards a bibliometric mapping of network public opinion studies. *Information* **2022**, *13*, 17. [[CrossRef](#)]