

Article

Not peer-reviewed version

# Research Hotspots and Trend Analysis of Community Public Health Based on CiteSpace and VOSviewer

Pingping Wang \*, Chenhui Deng , Jin Yao , Yaqiong Li , Xiaorong Huang

Posted Date: 4 July 2024

doi: 10.20944/preprints202407.0380.v1

Keywords: community public health; Bibliometrics; Visualization; Development trend; CiteSpace; VOSviewer



Preprints.org is a free multidiscipline platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Disclaimer/Publisher's Note: The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

Article

# Research Hotspots and Trend Analysis of Community Public Health Based on CiteSpace and VOSviewer

Pingping Wang 1,\*, Chenhui Deng 2, Jin Yao 3, Yaqiong Li 4 and Xiaorong Huang 5

- Department of Medical Laboratory, Luoyang Maternal and Child Health Hospital, 206 Tongqu Road, Luolong District, Luoyang City, Henan Province, China
- <sup>2</sup> Luoyang Research Center for inheritance and innovation of Chinese historical civilization, Luoyang Institute of science and Technology School of Marxism (LIT), No. 90 Wangcheng Avenue, Luolong District, Luoyang City, Henan Province, China; dengch2016@163.com
- Department of Infection and Public Health Management, The Second Affiliated Hospital of Henan University of Science and Technology, No. 80 Jinguyuan Road, Xigong District, Luoyang City, Henan Province, China; yaojin880225@163.com
- Medical Imaging Department, Luoyang Maternal and Child Health Hospital, 206 Tongqu Road, Luolong District, Luoyang City, Henan Province, China; 455814178@qq.com
- Luoyang Research Center for inheritance and innovation of Chinese historical civilization, Luoyang Institute of science and Technology School of Marxism (LIT), No. 90 Wangcheng Avenue, Luolong District, Luoyang City, Henan Province, China; 1367318612@qq.com
- \* Correspondence: 516081569@qq.com

Abstract: Objective: To explore the hot spots and development trends of community public health research. Methods: The literature related to this topic were searched in CNKI and PubMed databases, and the trend map of the number of articles was drawn according to the obtained data. The included literature were analyzed with vosviewer software for keyword and author co-occurrence, and CiteSpace 6.3.R1 Basic software was used for mechanism co-occurrence, key emergence and clustering analysis, and time line distribution map drawing. Results: 189 Chinese literature and 77 English literature were selected. The Chinese literature focused on "community public health service, emergency management and community governance", and the research trend was "community public health emergency management and community governance"; English literature focuses on "nursing education, health education, human qualitative research". Conclusion: Although the Chinese and English literature shows that scholars in this field have different emphases, the primary community health is the key and difficult point to realize the national public health service project, and improving the basic public health service in the primary community is related to the health of all the people, so it is very important.

**Keywords:** community public health; Bibliometrics; Visualization; Development trend; CiteSpace; VOSviewer

# 1. Introduction

"A strong primary health care platform with integrated community engagement within the health system is the backbone of universal health coverage." [1] WHO points out that the key to comprehensive health coverage lies in community participation [2]. The Community public health service is an important part of China's health service system, and plays a very important role in disease prevention and control [3]. The Chinese government attaches great importance to community public health services. It believes that grass-roots health institutions have the characteristics of public services and reflect the fairness and accessibility of health work. The government should assume more responsibilities and require them to contact cities to scientifically and reasonably determine

community public health service projects based on the national basic public health service projects and according to the local community basic public health service financing level, the service capacity of community health service institutions and major public health problems [4].

In terms of top-level design, China started to implement community public health services as early as 2015. Make use of residents' health files, health statistics, special investigations and other information, regularly carry out community health diagnosis, clarify the basic health problems of residents in the area, and formulate a population health intervention plan. We will implement national basic public health service projects and continue to expand the coverage of beneficiaries. Implement various public health service specifications and technical specifications, provide relevant basic public health services for specific groups according to the service process, and improve residents' sense of access. Strengthen the division of labor and cooperation between community health service institutions and professional public health institutions, reasonably set up public health service posts, further integrate basic medical and public health services, and promote the combination of prevention and treatment. While steadily increasing the number of public health services, we should pay attention to strengthening the monitoring and management of the quality of public health services and the effect of health management [5].

Through the collation of relevant data in 2010, 2015 and 2019, it can be seen that the number of community health service centers (stations), the number of diagnosis and treatment people in community health service centers, and the number of beds in medical and health institutions are increasing (Table 1). This also shows that the Chinese government has paid more and more attention to community public health services, and the community health service system has been continuously improved [6].

**Table 1.** Statistics of public health service capacity in different years.

category	2010	2015	2019
Community health courses contage (stations) (Nee)	3273	3432	3501
Community health service centers (stations) (Nos.)		1	3
Person times of diagnosis and treatment in Community Health Service	3474	5590	6911
Center (10000 person times)	0.4	2.6	0.7
Number of beds in Community Health Service Center (station) (10000)	16.88	20.1	23.74

Note: the data are from the China Health and statistics yearbook

# 2. Data and Methods

# 2.1. Data Source and Retrieval Strategy

This study takes the literature collected by CNKI from 2014 to 2024 and PubMed from 1936 to 2024 as the main data source, and analyzes the Chinese and English literature respectively. The search term of CNKI database is community public health, and the search term of PubMed database is community public health. The CNKI search method: the title is "community public health", the condition setting is "accurate", and the selected time range is from June 11, 2014 to June 11, 2024. A total of 189 Chinese documents were retrieved. PubMed search method: title = community public health. The search time ranged from January 1936 to April 2024. A total of 77 English literature was retrieved.

# 2.2. Data Extraction and Collection

The Chinese and English literature with the theme of community public health was included in the analysis, excluding the conference, newspaper, achievement and patent literature in CNKI database, and selecting the article and review article literatures in PubMed database. In order to improve the relevance of the literature, this study used to summarize and summarize the topics and abstracts of each Chinese and English literature, and finally selected 189 Chinese literature and 77

3

English literature. The Chinese documents are exported in batches in refworks format, and the files are named "download\_\*.txt". The contents of the English documents are selected from the full records and references cited, and the records are exported in plain text format. The file naming format is the same as that of the Chinese documents.

# 2.3. Mapping and Visual Analysis

2.3.1. VOSviewer imports literature from CNKI and PubMed databases in bulk into VOSviewer version 1.6.20, selects appropriate relevant thresholds, and selects "Analysis" in the software toolbar. By changing the parameters of each functional area, nodes are evenly distributed. In addition, to make the graph clearer and more beautiful, the range of parameters in the visualization display area can be dynamically adjusted to obtain a visualization co-occurrence graph of the author and literature keywords.

2.3.2. The time span of CiteSpace Chinese and English literature is from January 1936 to January 2024, and from June 2014 to June 2024, respectively. Both time slices are set to "1", and the software's default screening criteria (top 50) are selected. The data is cropped using "Pathfinder" and "Pruning sliced networks", and the node types of Chinese and English literature are set to institutions, keywords, and terms, respectively. Institutional co-occurrence visualization analysis, keyword clustering and timeline analysis, keyword emergence analysis, and term co-occurrence analysis are performed sequentially. Latent semantic indexing (LSI) algorithm is selected for clustering.

# 2.4. Statistical Analysis

CNKI and PubMed visualization tools were used to automatically draw the annual publication trend chart and analyze the community public health related research trends. CiteSpace 6.3.R1 basic and VOSviewer 1.6.20 were used to map the cooperation network of the core authors of Chinese and English literature, and the keyword co-occurrence network and density map of Chinese and English literature were drawn. CiteSpace 6.3.R1 basic is used to count the main keyword clustering information and strong outbreak keywords, so as to capture the hot spots of community public health research and predict the future development trend of this field.

#### 3. Results

# 3.1. Document Distribution Trend

A total of 266 Chinese and English literatures (189 in Chinese and 77 in English) on community public health research in the past 88 years were included in this study. See Figures 1 and 2 for the trend of publication. CNKI database shows that there have been three peaks of articles published since 2014: 20 in 2015, 21 in 2018 and 23 in 2020; After 2023, the number of papers published in this field showed a sharp downward trend. PubMed database shows that the literature in this field was first published in 1936, but the research on this field from 1936 to 2001 was few and sporadic, and the research development was relatively slow. After 2002, the number of documents included in the database began to rise. After 2007, the number of documents in this field continued to grow, reaching a peak in 2019.

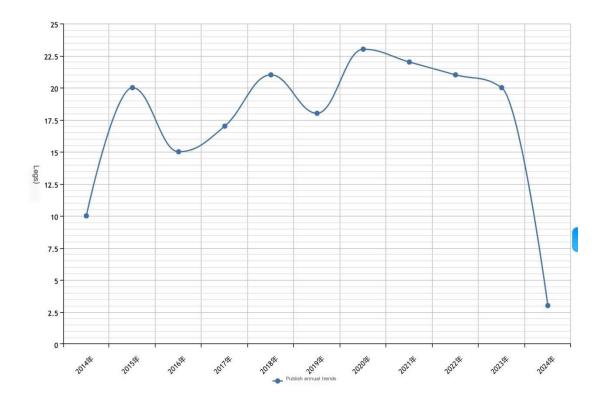


Figure 1. Trends in the publication of Chinese Journals of community public health research.

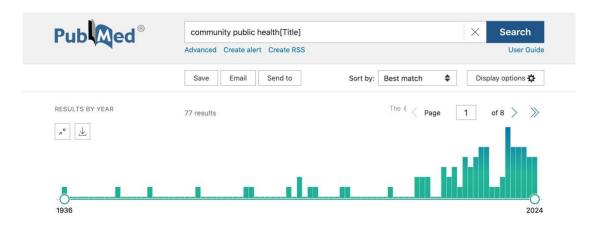


Figure 2. Trends of publications in foreign journals of community public health research.

#### 3.2. Author Analysis

According to CNKI statistics, the top four authors of Chinese and English literature research in this field are listed in Tables 2 and 3. Yang Hong and Sun Mengmeng from Dalian Maritime University and Sun Lan from Shanghai Minhang District Xinhong community health service center, the authors of Chinese literature, ranked first (3) in the number of articles. The former had a total frequency of 1224 citations and 872 citations, while the latter had a total frequency of 489 citations and 366 citations. The English literature authors College of nursing and Health Sciences, Joyce Barbara L of the University of Colorado and Simon Monica J of Thomas Jefferson University, Lucille B Pilling of Thomas Jefferson University, Nancy Brown Schott of the University of Toledo College of Nursing, Regina Gina H Johnson and Vicki Hicks of the University of Kansas School of Nursing, have the same number of papers as the first (4).

Serial number	title	(I) author / editor in chief	source	Time of publication	Cited	download
	Experience and			-		
	Enlightenment of British	Hong Yang;	Journal of		4	200
	1government purchasing community public health	Sunmengmeng	Taiyuan City	August 28, 2022	1	399
	services	Į.	Polytechnic			
	Existing problems and					
	Countermeasures of					
	government investment	Hong Yang;	Health economy	2023/3/5	1	298
		Sunmengmeng	in China	2023/3/3	1	290
	community public health	l.				
	services					
	Problems and Countermeasures of		Journal of			
	Chinese government		Nanjing Medical			
	3purchasing community	Hong Yang;	University	2022/9/5	2	527
	public health services	Sunmengmeng	(SOCIAL			
	Based on the pilot		SCIENCES EDITION)			
	practice in typical cities		LDITION)			
	Cost benefit analysis of	Yangshengyuan; Sun		July 10, 2017		151 154
	public health 4outsourcing support	LAN; Ye Weimin;	Journal of		2	
	services in Huacao	(Thengylining:	Community Medicine		2	
	community	Zhaohuilan	Wicarchic			
	Exploration on the					
	functional orientation of	Sun LAN; Haiyan Yang	g; Primary health care in China	Tune 10, 2015	2	
	5community public health					
	centers under the family					
	doctor system	C I ANI				
	Practice of community public health center	Sun LAN; Mayingzhong;				
	6operation mechanism	Yujiankun; Zhaohuilan;	Primary health	May 10th, 2015	11	184
		Haiyan Yang; Wang	care in China	, ,		
	system	Jing				
	Research on community					
	7public health service in	Quwencai	Tibet University	April 17, 2020	0	105
	Lhasa					
	Research on government responsibility in		Modern economic	,		
	community public health	Quwencai	Modern economic information	March 25, 2020	2	124
	supply in Lhasa					
	Research on the design					
	and cost management of	h Yanjingdong; Wudeqin;	Guangdong Provincial			
	9	Lipengjun; WISCO;	Department of	September 1,	0	6
	patients with stroke	v Wangxiaoyan: Guoyan:	science and	2018		
	•		technology			
	platform	,				
	Difficulties and					
	Countermeasures of state	, ,		September 28,		
		bureau level leading	Beijing Daily	2021	0	72
	undertaking community	caare training class I				
	public health services					

**Table 3.** Top 4 authors of English literature in community public health research.

Serial number	title	(I) author / editor in chief	source	Time of publication	Cited	download
1	Using a quality improvement model to enhance community/public health nursing education.	Joyce Barbara L;Harmon Monica J;Johnson Regina Gina H;Hicks Vicki;Brown-Schott Nancy;Pilling Lucille B	Public health nursing (Boston, mass.)	November 4, 2019		
2	Quad Council Coalition community/public health nursing competencies: Building consensus through collaboration.	Campbell Lisa A;Harmon Monica J;Joyce Barbara L;Little Susan H	Public health nursing (Boston, mass.)	October 7, 2019		
3	The Preparation of Community/Public Health Nurses: Amplifying the Impact.	Joyce Barbara L;Harmon Monica J;Pilling Lucille B;Johnson Regina H;Hicks Vicki L;Brown-Schott Nancy	Public health nursing (Boston, mass.)	August 30, 2015		
4	Community/public health nursing faculty's knowledge, skills and attitudes of the Quad Council Competencies for Public Health Nurses.	Joyce Barbara L;Harmon Monica;Johnson Regina Gina H;Hicks Vicki;Brown-Schott Nancy;Pilling Lucille;Brownrigg Vicki	Public health nursing (Boston, mass.)	May 2, 2018		

Note: PubMed does not have statistical data on paper citations and downloads.

CiteSpace 6.3.R1 basic software is used to draw the cooperative relationship map of core authors of Chinese literature, as shown in Figure 3, and vosviewer 1.6.20 is used to draw the cooperative relationship map of core authors of English literature, as shown in Figure 4. Rao Zuhai and Zhou Hongzhen are the team representatives in this research field among the core authors of the Chinese literature displayed by the visual atlas; The core authors of English literature formed research teams represented by Barbara L Joyce, Nancy Brown Schott, Monica J Harmon, Vicki Hicks, Regina Gina H Johnson and Lucille B Pilling.

Figure 3. Cooperative network of Chinese literature authors in community public health research.

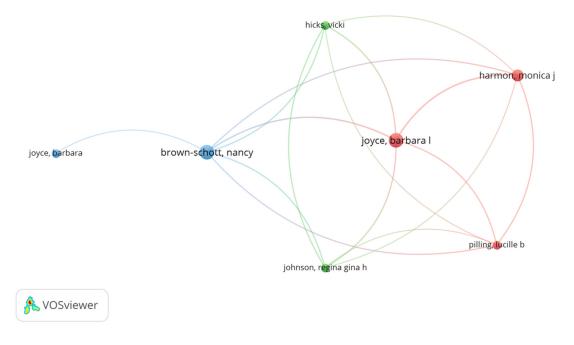


Figure 4. Cooperative network of English literature authors in community public health research.

#### 3.3. Analysis of Research Institutions

CiteSpace 6.3.R1 basic was used to analyze the co-occurrence of Chinese literature publishing institutions. The Chinese literature involved five research institutions respectively. The network visualization map is shown in Figure 5. Using the CNKI visualization tool, we can see that the top 10 institutions with the highest number of documents are shown in Figure 6. The most closely related institutions of Chinese literature are concentrated in Sichuan Province. They are the Centers for Disease Control and prevention in Zigong, Sichuan Province, the emergency management research center of West China Union Medical College and Chen Zhiqian Health Research Institute of Sichuan

University, the West China School of public health of Sichuan University / West China fourth hospital, the healthy city development research center of Sichuan University / the western rural health development research center, and the Research Center for social development and social risk control of the key research base of philosophy and Social Sciences in Sichuan Province. They have worked closely together to form the core team in this research field.

June 12, 2024, 6:54-88PM CST <sup>58</sup>. (MKI: / Users/ wangpingping) Documents / 参与外位重聚项目 / data Selection Criteria; g-index (k-23), LR=2.5, L/N=10, LBY=5, e=1.0 karyest 1, CSE 5 (28), Parings: All CSE 5 (28), Pruning: Pathings: Modularity Q=0.09 Harponic Mean (Q, 5)=0.7838



**Figure 5.** Cooperative network of Chinese Literature Institutions for community public health research.

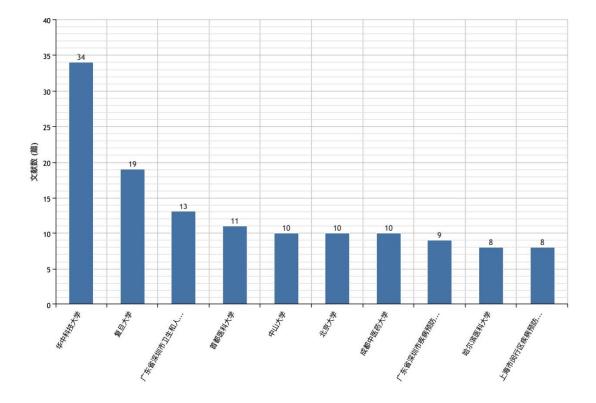
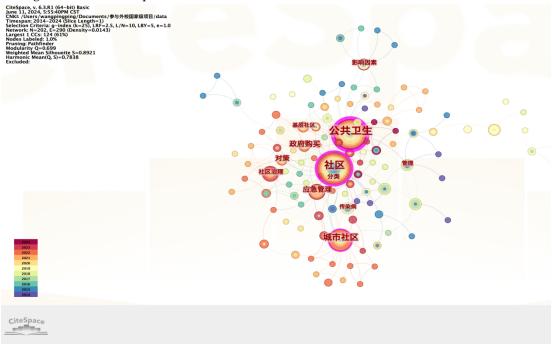


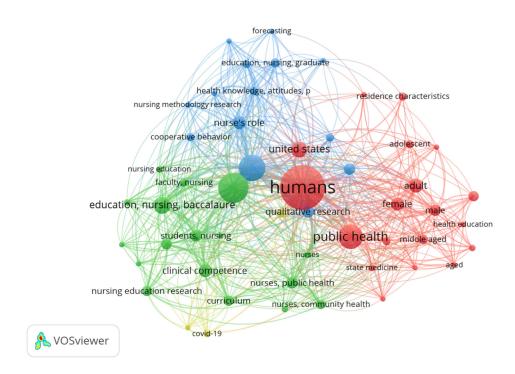
Figure 6. Top 10 institutions in the field of community public health research.

# 3.4.1. Keyword Co-occurrence Analysis

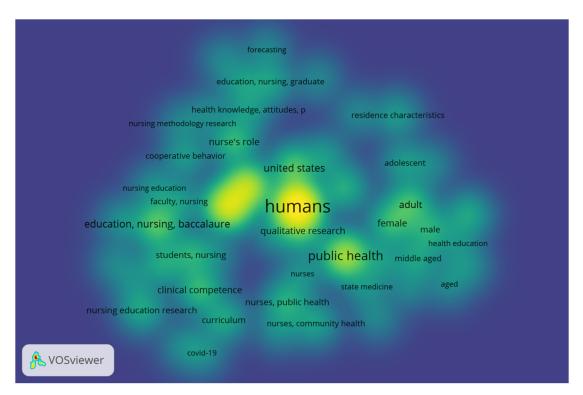
Research and analysis of the key words of the included literature can accurately grasp the research hotspots in a certain field and understand the latest scientific research progress [13]. CiteSpace 6.3.R1 basic and vosviewer 1.6.20 were used for analysis. The keyword co-occurrence network and density visualization map are shown in Figures 7–9. The top 27 keywords are shown in Table 3. The analysis results show that the research purposes of community public health in China include "public health", "community", "urban community", "community governance", "emergency management", "government purchase", "countermeasures", "influencing factors", "infectious diseases" and "management". The purpose of foreign community public health research focuses on three areas: first, the field of "people", including "public health", "adult", "male", "female" and other aspects; Second, the fields of "education", "nursing" and "Bachelor's degree", including "clinical competition", "nursing teaching research", "Curriculum" and other aspects; The third is the fields of "nurse role" and "cooperative behavior", including "nursing methodology research", "health knowledge and attitude", "prediction", etc.



**Figure 7.** Co-occurrence network of keywords in Chinese literature of community public health research.



**Figure 8.** Co-occurrence network of English literature keywords in community public health research.



**Figure 9.** Co-occurrence density of English literature keywords in community public health research.

**Table 4.** Top 25 keywords of community public health research literature.

Serial number	keyword	Frequency
1	public health	42

11

2	community	33
3	urban community	16
4	contingency management	10
5	Community Governance	8
6	influence factor	6
7	countermeasure	5
8	Grassroots community	5
9	Government purchase	5
10	performance appraisal	4
11	communicable disease	4
12	Administration	4
13	General practice	4
14	informatization	4
15	effect	4
16	Collaborative governance	3
17	Rural community	3
18	chronic disease	3
19	Emergency capability	3
20	Epidemic prevention and control	3
21	problem	3
22	chronic disease	3
23	human resources	3
24	nursing	3
25	Community resilience	3
26	Nursing intervention	3
27	Emergency care	3

# 3.4.2. Keyword Clustering Analysis

In order to highlight the research theme in this field, this study uses the LSI clustering algorithm to cluster the keywords of Chinese and English literature, as shown in Figure 9. The clustering parameters of Chinese literature keywords are as follows: Chinese literature module clustering value (Q)=0.699 (>0.3), average contour value (S)=0.8921 (>0.5). When Q>0.3, clustering is effective, when S>0.5, clustering is reasonable, and when S>0.7, clustering is credible [7]. Thus, we can see that the eight clustering results of Chinese literature keywords in this study are satisfactory and reliable. According to the cluster diagram, most of the four cluster blocks with different colors overlap, and the overlapping area indicates that the clusters are closely related. Among them, the Chinese clustering words #0 public health, #1 urban community, #2 community involve research fields, #3 community governance, #4 management, #6 analysis involve related behavior research, #5 service process and #7 influencing factors involve theoretical knowledge or technical means. The main clustering information is shown in Table 5.

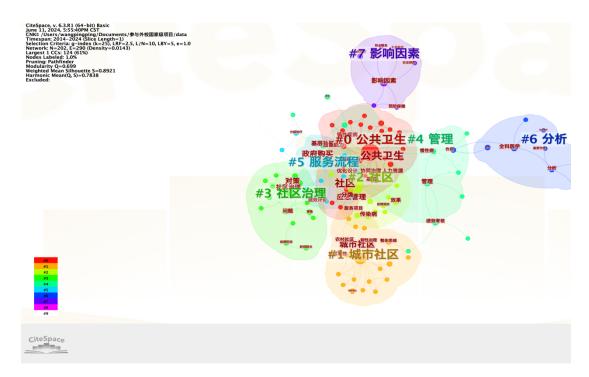


Figure 9. Keyword clustering diagram of Chinese literature on community public health research.

#### 3.4.3. Keyword Emergence Analysis and Timeline Distribution

CiteSpace 6.3.R1 basic was used to draw the timeline map based on the clustering of Chinese literature keywords (Figure 10), and the Chinese literature keywords with the top 16 outbreak intensity were highlighted (Figure 11). By acquiring the keywords and time line distribution of strong outbreaks, we can accurately analyze the changes of hot topics and effectively predict the research development trend [8]-

According to the keyword clustering timeline map, it can be found that the key words contained in the clustering labels of Chinese literature are mainly distributed in 2014-2019 and 2020-2024. Therefore, the research trend of Chinese literature can be roughly divided into two stages, the first stage of Chinese literature is 2014-2019, and the second stage of Chinese Literature is 2020-2024.

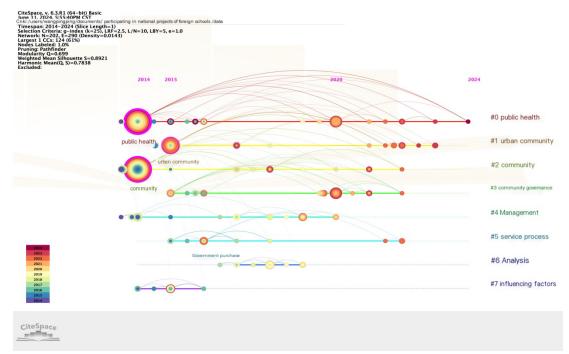
Stage 1: there are many keywords in the Chinese literature, and they are scattered, which is the initial stage of the research field. At this stage, the Chinese clustering labels #4 management and #7 influencing factors first appeared, and the Chinese clustering labels #3 community governance and #5 service processes later appeared and lasted for a long time.

Stage 2: the key words on the timeline are concentrated and distributed, which is the high-speed development period of Chinese literature research. This stage represents the hot research topics and development trends in this field. Compared with stage 1, the Chinese clustering labels #0 public health, #1 urban community and #2 community in this stage are more concentrated and last for a long time.

The strong outbreak keywords of Chinese literature shown in Figure 10 are mainly distributed in the second stage of each keyword timeline. The keywords with the highest outbreak intensity in the Chinese literature are emergency management (intensity 2.8) and community governance (intensity 2.25), the keywords with the longest outbreak duration are community governance (4 years), and the hot keywords for predicting the future are community governance and community resilience.

**Table 5.** Keyword clustering of Chinese literature on community public health research.

Selected	ClusterID	Size	Silhouette	mean(Year)	Label (LSI)	Label (LLR)	Label (MI)
true	0	25	0.931	2019	(11.53) 社区卫生;	公共卫生 (12.79, 0.001); 人力资源 (8.16, 0.005); 应急能力	教学基地 (0.83); 协同网络 (0.83); 疾病
						(5.41, 0.05); 基层 (5.41, 0.05); 社区卫生服务 (5.41, 0.05)	预防控制机构 (0.83); 社区弹性能力
true	1	19	0.833	2020		城市社区 (21.6, 1.0E-4); 公共卫生风险 (8.42, 0.005); 社区韧	新冠疫情 (0.31); 韧性理论 (0.31); 情景
					性理论	性 (8.42, 0.005); 社区 (4.21, 0.05); 新冠疫情 (4.17, 0.05)	规划 (0.31); 社会动员 (0.31)
true	2	17	0.823	2017			社区公共卫生机构 (0.63); 心血管
						0.005); 基层治理 (6.25, 0.05); 公共卫生机构 (6.25, 0.05)	(0.63); 应用 (0.63); 社区公共卫生危机
							治理
true	3	15	0.876	2019		社区治理 (8.42, 0.005); 疫情防控 (8.42, 0.005); 对策 (8.42,	
					9		主体 (0.31); 满意度调查 (0.31
true	4	14	0.88	2016		管理 (14.76, 0.001); 基层社区 (9.73, 0.005); 绩效考核 (9.73,	
							社区医院 (0.2); 慢性疾病 (0.2);
						0.05)	
true	5	11	0.867	2017	(8.92) 绩效评估;		服务流程 (0.07); 优化设计 (0.07); 层次
							分析法 (0.07); 海门市 (0.07)
true	6	9	0.986	2018		分析 (13.52, 0.001); 成本 (6.62, 0.05); 全科医学 (6.62,	成本 (0.06); 全科医学 (0.06); 效益
						0.05); 效益 (6.62, 0.05); 重要作用 (6.62, 0.05)	(0.06); 重要作用 (0.06); 分析
true	7	7	0.969	2015		影响因素 (12.98, 0.001); 欠发达地区 (6.37, 0.05); 预防保健	欠发达地区 (0.07); 预防保健 (0.07); 需
						(6.37, 0.05); 需求 (6.37, 0.05); 实证研究 (6.37, 0.05)	求 (0.07); 实证研究 (0.07);
true	10	4	0.989				护理干预 (0.05); 防治效果 (0.05); 血压
					社区公共卫生; (1) 血压; (1) 血脂; (1) 防治效果	0.01); 心血管疾病 (6.91, 0.01); 生活方式 (6.91, 0.01)	(0.05); 心血管疾病 (0.05);
true	19	3	0.971	2015	(1) 作用研究; (1) 卫生利用; (1) 弱势群体; (1)	卫生利用 (8.15, 0.005); 弱势群体 (8.15, 0.005); 作用研究	公共卫生 (0.05); 卫生利用 (0.03); 弱势
							群体 (0.03); 作用研究 (0.03)
						0.5)	



**Figure 10.** Time line distribution of key words in Chinese literature of community public health research.

Top 16 Keywords with the Strongest Citation Bursts



**Figure 11.** highlights of key words (top 16) in Chinese literature of community public health research.

#### 4. Discussion

According to the analysis of the authors, institutions and key words of the Chinese and English literatures on community public health research, the research hotspots in this field are mainly distributed in emergency nursing, performance appraisal, chronic diseases, general medicine, emergency management, community governance, urban community, community resilience, health knowledge and attitude, nursing teaching research, etc. The main functions of community health services are public health and basic medical services. Therefore, it is a general trend to explore a way to sink public health resources into communities, especially to meet the governance needs of urban communities and the health knowledge and chronic disease management of grass-roots people.

# 4.1. Research Hotspots

Through the co-occurrence analysis of the authors and institutions of the literature, it is found that the main domestic research institution in this field is the Zigong Center for Disease Control and prevention in Sichuan Province, which has explored the constituent elements of the community public health emergency response ability index system, providing a reference for the construction of the community public health emergency response ability evaluation index system [9]. West China School of public health, Sichuan University / West China fourth hospital, to explore the applicability of job description method to the calculation of public health human resource allocation in community health service centers [10]. Yang Hong and Sun Mengmeng believed that the government's purchase of community public health services was an important measure to improve the level of community public health services. To improve the government's purchase of community public health services, it is necessary to establish a stable public health investment mechanism, improve the basic conditions of disease control institutions, strengthen the grass-roots public health system, improve laws and regulations and the supervision and evaluation mechanism, and improve the public health service capacity [11]. Sun Lan discussed the functional positioning of community public health centers in the

construction of family doctor system, put forward the idea of family doctor system adaptation support system construction, clarified the role of community public health centers in the framework of family doctor system, and provided the basis for further improving the family doctor system [12]. Chinese literature shows that scholars mainly focus on "community public health services" in this field. Barbara L Joyce believes that population-centered practice is an important part of Bachelor of nursing education. The specialty of community / public health nursing (C/PHN) emphasizes prevention and focuses on multiple determinants of health to improve population health outcomes [13]. He believes that the professional environment of community / public health nursing practice is constantly changing, and the ability based on current evidence-based practice is needed [14]. He also believes that improving population health, population focused care and community networks are the goals of the health care delivery system. Community / public health nursing education, practice and research must be reexamined, refocused and redesigned to meet the challenges of providing expanding health care to people and communities in the 21st century [15]. English literature shows that the academic team with the scholar as the core attaches great importance to "nursing" and "nursing education" in this field.

#### 4.2. Development Trend

According to the analysis of the trend of Chinese publications, the development of this research field can be roughly divided into three stages, namely, the initial period (2014-2015), the transition period (2016-2018), and the high-speed development period (2019-2024). In addition, combined with keyword emergence and time line distribution, the research on the initial and transitional stages of the development of this field mainly attempts to sort out and review the literature research from the concept connotation, definition principles, definition methods and other aspects of community public health service projects, and summarizes several representative community public health service models in China [16]. The rapid development of this field is guided by the concept of "integrating health into all policies", reconstructing the community public health prevention and control system from the top-level design, effectively utilizing and rationally allocating community public health prevention and control resources, and promoting the construction of the national public service governance system and governance capacity [17]. According to the analysis of keyword emergence, the keyword "community governance" has lasted since its outbreak, and the keyword "emergency management " has the highest intensity. Therefore, it can be judged that the future development trend of this research field will still tend to explore the establishment of a sound community public health emergency management system, so as to better improve and activate the ability and level of the community to respond to public health events [18].

According to the analysis of the trend of English articles, the direction of "nursing education", such as Ricky Baker From the perspective of professional community public health nurses, this paper discusses the problem of letting intern nurses meet the sexual health needs of young people [19]; The direction of "grassroots clinical nursing", such as hyunsuk Jeong explored the effectiveness of suicide prevention programs in primary health care clinics from the perspective of community public health resource support [20]; "Ethnic group and age" direction, e.g Elodia Caballero explores the public health impact of the "label of Latino communities" on youth and its role in community narratives [21]; "Emergency management" direction, e.g Guosheng HuThe optimization methods of community public health and safety emergency management and nursing insurance services were studied to promote the construction of a healthy urban environment [22].

# 4.3. Deficiencies

At the time of data collection, the Chinese database was CNKI and the English database was PubMed. The selected databases were all authoritative databases. In order to further study this field, English databases such as web of science can be included in it in the future. At the same time, in order to obtain highly relevant literature, only the literature with the title of "community public health" was searched, and the search types of subject words were narrowed. When the literature was included, there may be a lack of literature quantity, causing errors to the analysis results.

#### 5. Conclusion

Through the use of bibliometrics software to map the key information of Chinese and English literature of community public health research, the information can be visualized, and then the research hotspots and development trends in this field can be effectively obtained. The hot research found that first of all, we should strengthen the community public health function, clarify the basic public health service items, especially do a good job in health education, chronic disease management and other services, and strive to change the residents' unhealthy lifestyle, reduce the occurrence of diseases, reduce the disease burden of the state, society and individuals, and improve the health level of the masses. Strengthening public health services does not mean weakening basic medical services. Community health service institutions should have the ability to solve basic medical problems for the masses, otherwise it will be difficult to divert patients from large hospitals and the masses will not be satisfied. However, we should pay attention to limiting the scope of medical services of community health service institutions, and should not blindly expand the scale and content of medical services, nor develop in the direction of specialty [23]. Although Chinese and English literature shows that scholars in this field have different focuses, basic public health services in grass-roots communities are crucial because they are related to the health of all citizens [24].

**Authors'contributions:** Formal analysis: Chenhui Deng. Funding acquisition: Chenhui Deng, Xiaorong Huang. Methodology: Pingping Wang, Xiaorong Huang. Project administration: Xiaorong Huang. Software: Jin Yao. Supervision: Yaqiong Li. Visualization: Jin Yao. Writing—original draft: Pingping Wang. Writing—review & editing: Xiaorong Huang.

**Funding:** Henan Provincial Department of Education Humanities and Social Sciences Research Project, 2023-ZDJH-529, Chenhui Deng; The 2024 Luoyang social science planning project "Research on the impact and strategy of neighborhood center construction on the quality improvement of Luoyang City", No. 38, hosted by Xiaorong Huang; Research project of Luoyang people's Congress System Theory Research Association for 2024 "Research on strengthening the construction of the four organizations of Henan Provincial people's Congress", No. 14, Host: Xiaorong Huang.

**Availability of data and materials:** All data generated or analyzed during this study are included in this published article. In addition, other data sets used during the current study are available from the corresponding authors on reasonable request.

**Ethics approval and consent to participate:** Because the current study did not include any human interaction, it does not require the permission of the Ethics Committee.

Consent for publication: Not applicable.

**Acknowledgements:** Thanks to Dr. Chenhui Deng of Luoyang Institute of Science and Technology for his support in the field of statistics for this paper. Meanwhile we would like to thank our funders, esp Luoyang Maternal and Child Health Hospital, for their kind and generous financial support towards achieving these study objectives.

Competing interests: The authors declare that they have no competing interests.

#### References

- 1. Ghebreyesus TA. All roads lead to universal health coverage. Lancet Glob Health. 2017;5(9):e839-e840
- 2. Community engagement: a health promotion guide for universal health coverage in the hands of the people. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO.
- 3. Yang Xianhu, Luo Zhonghua. Strategies for Improving the Community Public Health Service System [J]. China Rural Health Management, 2021, 41 (06): 416-420. DOI: 10.19955/j.cnki.1005-5916.20211.06.008
- 4. Notice of the General Office of the Ministry of Health on Further Strengthening the Construction of National Community Health Service System and Key Contact Cities http://www.nhc.gov.cn/bgt/s9512/200906/8b3b9b4c32a94a7398c870c957e1f7f8.shtml
- 5. Guiding Opinions on Further Standardizing Community Health Service Management and Improving Service Quality. National Health Grassroots Development [2015] No. 93 http://www.nhc.gov.cn/jws/s3581r/201511/1742007746a64005a16e32de00cc5fc5.shtml

- 6. Sun Mengmeng, Yang Hong. Issues and Countermeasures of Government Procurement of Community Public Health Services in China: Based on Pilot Practice in Typical Cities [J]. Journal of Nanjing Medical University (Social Science Edition), 2022, 22 (04): 351-356
- 7. Hao Jiashu Research on semi-automatic construction of domain ontology hierarchical relationships based on keyword clustering [J] Intelligence Science, 2016, 34 (4): 59-61
- 8. Chen Yue, Chen Chaomei, Liu Zeyuan, etc The methodological function of CiteSpace knowledge graph [J] Scientific Research, 2015, 33 (2): 242-253
- 9. Yang Qin, Zou Kun, Jiang Xiaoyong, et al. Research on the constituent elements of community public health emergency response capacity indicator system [J]. Modern Preventive Medicine, 2022, 49 (09): 1615-1619
- Zhang Lei, Qu Wei, Zhao Li, et al. Application of job description method in the allocation of public health personnel in community health service centers [J]. Modern Preventive Medicine, 2016,43 (22): 4131-4133+4142
- 11. Sun Mengmeng, Yang Hong. Issues and Countermeasures of Government Procurement of Community Public Health Services in China: Based on Pilot Practice in Typical Cities [J]. Journal of Nanjing Medical University (Social Science Edition), 2022, 22 (04): 351-356
- 12. Sun Lan, Yang Haiyan, Ma Yingzhong, et al. Exploring the functional positioning of community public health centers under the family doctor system [J]. China Primary Health Care, 2015,29 (06): 37-39
- 13. Joyce BL, Harmon MJ, Pilling LB, Johnson RH, Hicks VL, Brown-Schott N. The Preparation of Community/Public Health Nurses: Amplifying the Impact. Public Health Nurs. 2015 Nov-Dec;32(6):595-7. doi: 10.1111/phn.12236. PMID: 26493373.
- 14. Campbell LA, Harmon MJ, Joyce BL, Little SH. Quad Council Coalition community/public health nursing competencies: Building consensus through collaboration. Public Health Nurs. 2020 Jan;37(1):96-112. doi: 10.1111/phn.12666. Epub 2019 Oct 7. PMID: 31589001.
- 15. Joyce BL, Harmon MJ, Pilling LB, Johnson RH, Hicks VL, Brown-Schott N. The Preparation of Community/Public Health Nurses: Amplifying the Impact. Public Health Nurs. 2015 Nov-Dec;32(6):595-7. doi: 10.1111/phn.12236. PMID: 26493373.
- 16. Li Jingli, Han Zhiyan, Zhen Tianmin, et al. Review of research on community public health service projects in China [J]. Health Soft Science, 2014,28 (07): 431-436
- 17. Liu Lihang. Integrated Development of Grid Management and Community Public Health Services [J]. National Governance, 2020 (22): 23-26. DOI: 10.16619/j.cnki.cn10-1264/d2020.22.006
- Cao Haijun, Liang Sai. The Way of "Precision Control" in Community Public Health Emergency Management: Realistic Dilemmas, Logic and Governance Strategies [J]. Theoretical Exploration, 2020 (03): 149-157. DOI: 10.16354/j.cnki.23-1013/d2020.03.023
- 19. Baker R. Enabling student nurses to meet the sexual health needs of young people: the perspective of a specialist community public health nurse. Evid Based Nurs. 2024 Mar 7:ebnurs-2023-103864. doi: 10.1136/ebnurs-2023-103864. Epub ahead of print. PMID: 38453433.
- 20. Jeong H, Yim HW, Lee SY, Park M, Ko W. The effectiveness of a suicide prevention program in primary care clinics supported by community public health resources: A difference-in-differences analysis. Psychiatry Res. 2024 Apr;334:115803. doi: 10.1016/j.psychres.2024.115803. Epub 2024 Feb 18. PMID: 38412714.
- 21. Caballero E, Minnis A, Parmar D, Zerofsky M, Comfort M, Raymond-Flesch M. Labeling in a Latinx Community: Public Health Implications for Youth and Role in Community Narratives. Res Sq [Preprint]. 2023 Mar 14:rs.3.rs-2626181. doi: 10.21203/rs.3.rs-2626181/v1. PMID: 36993344; PMCID: PMC10055544.
- 22. Hu G, Wang Z, Jiang S, Tian Y, Deng Y, Liu Y. Community public health safety emergency management and nursing insurance service optimization for digital healthy urban environment construction. Front Public Health. 2022 Oct 18;10:1032758. doi: 10.3389/fpubh.2022.1032758. PMID: 36330115; PMCID: PMC9623175.
- 23. Speech by Minister Chen Zhu and Deputy Minister Liu Qian at the 2009 National Conference on Community Health Work (Health Administration Bulletin, Issue 21) http://www.nhc.gov.cn/jws/s6459/200908/61d449e846ea446b83f8798af3dfab0f.shtml
- 24. Ji He. Scientific Construction of Grassroots Community Public Health Service System [J]. Electronic Journal of Clinical Medical Literature, 2019,6 (33): 192. DOI: 10.16281/j.cnki. jocml. 2019.33.138

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.